

AUTOMOTIVE INDUSTRIES

Volume 56
Number 4

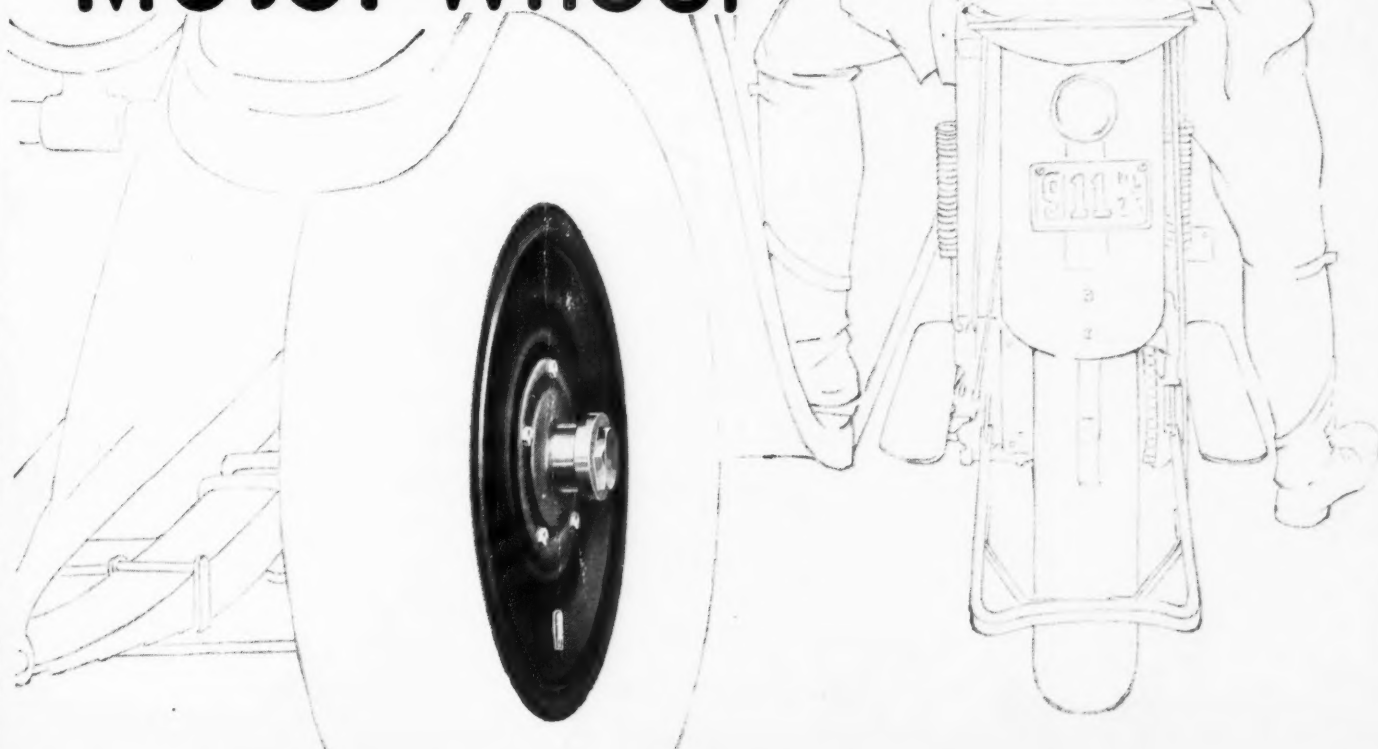
PUBLISHED WEEKLY AT CHESTNUT AND 56TH STREETS
PHILADELPHIA, JANUARY 29, 1927

35c a copy
\$3.00 a year

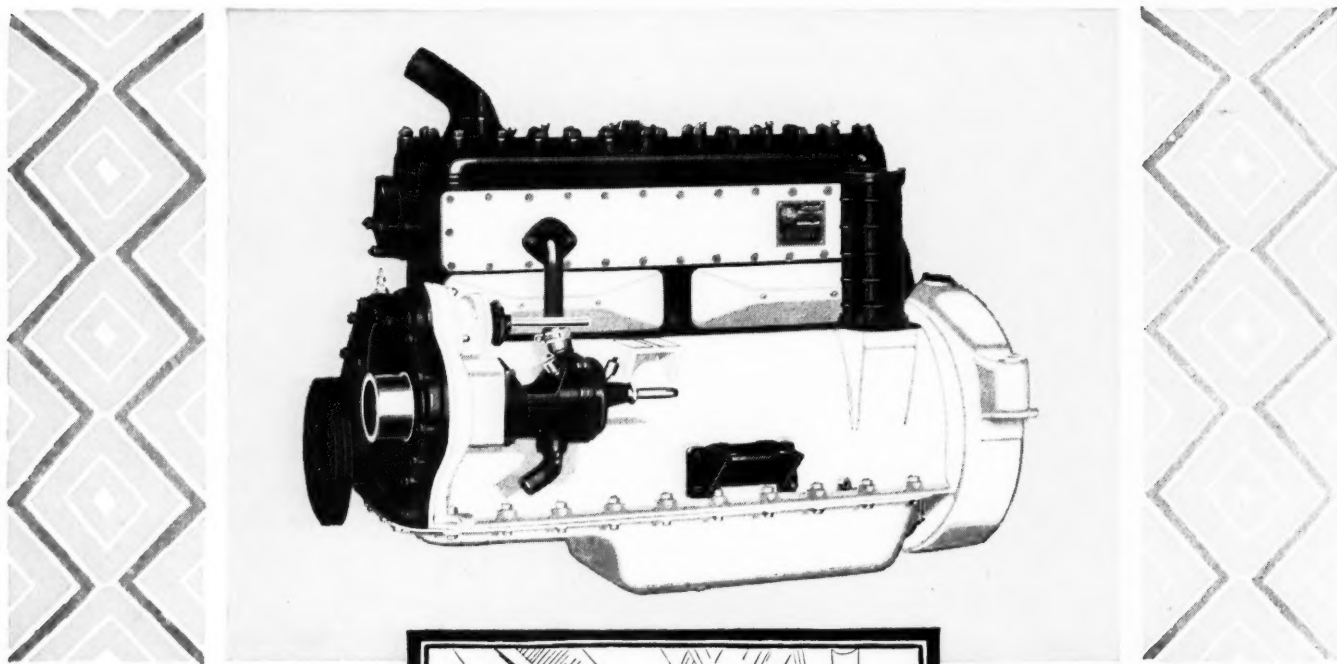
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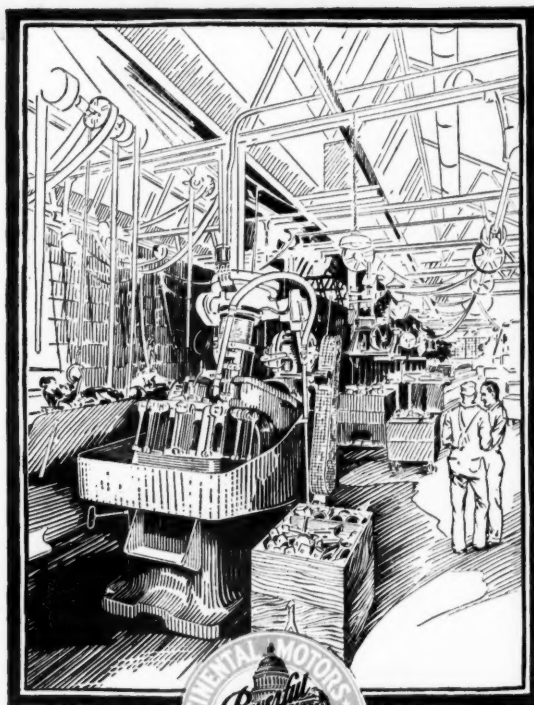


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AUTOMOTIVE INDUSTRIES

VOLUME 56

Philadelphia, Saturday, January 29, 1927

NUMBER 4

Future is Bright for the Parts Makers

Manufacturers of original equipment are coming out of a trying period better entrenched than ever before.

By John C. Gourlie

THE manufacturers of original equipment for motor cars and trucks, acquiring strength through adversity, have come out of a trying period better entrenched and with a brighter future than at any time in recent years. The amount of new business signed up in 1926 was beginning to focus the attention of the industry when the New York show opened, and it is believed that accounts were added during show week or negotiations started that will lead to another notable increase in contracts.

Everything considered, many of the equipment makers have relatively better prospects for profits in 1927 than some of the car manufacturers. Last year proved, if proof of the point were required, that individual car makers are subject to ups and downs that bear little relation to the trend of the industry. The parts maker, with a diversity of outlets, has the chance of gaining on some accounts when he loses on others.

Comparisons have been made from time to time of 1926 profits of car makers as a group and equipment makers as a group. These have tended to show that the automobile companies were more prosperous, but they were misleading on more than one account. The profits of the car group

were inflated by the enormous gains made by General Motors, including its parts-making subsidiaries, while the equipment group included only the small proportion of companies listed on the New York Stock Exchange, several of which are not primarily original equipment makers.

A survey of all, or nearly all, of the unit parts makers, if practicable, would almost certainly show that 1926 was one of the best they ever had, and this coupled with the new business taken on recently appears to point to a definite trend in favor of the equipment industry. The evidence becomes stronger when it is considered that many of the new accounts insure a large volume and come from factories which have hitherto been largely self-contained so far as important units of equipment were concerned.

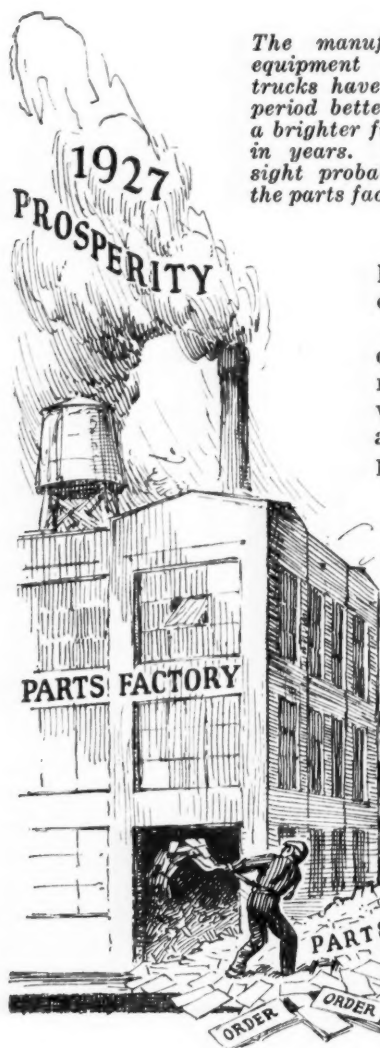
The latter point is the most significant from the parts makers' point of view. They see a change in the movement toward one-roof manufacture and believe that the tide may now be in the other direction. The fact that a few manufacturers have been willing to go outside for equipment units seems likely to influence others to examine in a more receptive mood the possible advantages in simi-

The Equipment Picture, 1926-1927

Proportion of chassis in production at the beginning of the year equipped with certain important unit parts bought from outside sources rather than made in the car manufacturer's plant:

	1927	1926
Clutches	70.4%	60.8%
Gearsets	46.8	44.2
Rear axles	53	54
Front axles	57.7	53.5
Steering gears	78.6	74.6
Universals	88.2	86
Engines	36.6	39

The percentages are all affected by the fact that several chassis went out of production in 1926. These carried independent equipment units but had a negligible total output. New business signed by the parts makers recently has been for fairly large volume jobs in several cases. The engine classification will be bettered shortly by new cars to be announced.



The manufacturers of original equipment for motor cars and trucks have come out of a trying period better entrenched and with a brighter future than at any time in years. The business now in sight probably will keep most of the parts factories busy during 1927

lar changes in their own production plans.

A comparison of chassis specifications recently as compared with those of a year ago, presented on the preceding page, shows the extent to which certain important equip-

be made and then assemble the parts into a complete unit at the points of consumption. That is the method we are now following and expect to extend. It would make no difference whether one company or one individual owned all the factories fabricating the component parts of a single product, or whether such part were made in an independently-owned factory, if only all adopted the same service methods. If we can buy as good a part as we can make ourselves and the supply is ample and the price right, we do not attempt to make it ourselves. In fact, it might be better to have the ownership widely scattered."

Changing Trends

If this was always true in the abstract it is becoming more and more true as a practical matter. The parts makers were never in better condition to render service. They were put on the defensive when the car factories years ago began to concentrate and to integrate production. Wholesale eliminations had to be made, and those who remained did so by expanding their knowledge and bettering their methods. As a result they have been able to take the aggressive and go after business in places that seemed to be barred to them.

ment items are purchased from independent sources. It does not, however, give an entirely true picture of the trend, as several very small production jobs passed out during 1926 and affected the number of accounts held by the equipment makers without seriously influencing volume.

On the other hand, the new accounts established compensated many times over for the eliminations noted. When a single maker, Ford, turned to Holley for carburetors it obviously meant more to the equipment maker than the loss of a dozen other contracts would have signified. Several other instances of similar character could be cited.

As a matter of fact, there seems to be a growing realization that the one-roof idea has been turned into something of a fetish and there is undoubtedly a disposition to examine the respective merits of opposing production theories in the light of unprejudiced reason and to discover that the parts makers, on certain items, have advantages to offer that are magnified in these days of fierce competition and rapid changes to meet the public taste.

The theory that parts makers have a definite and almost inescapable function to perform receives support from an unexpected but highly authoritative quarter. Says Henry Ford, in "My Life and Work":

"The most economical manufacturing of the future will be that in which the whole of an article is not made under one roof—unless, of course, it be a very simple article. The modern—or better, the future—method is to have each part made where it may best

The companies left are in the main strong financially, thus satisfying one of the outstanding needs of their customers—for stable and reliable sources of supply. They have improved their products immeasurably, because they had to do so to survive. They have improved their production methods, because it was necessary to bring costs down and to establish flexibility. Most of them now can change production schedules more quickly and at less cost than the car manufacturers, and this is helping them to win and to hold business.

Aside from these considerations, the impelling factors in the changes made by car manufacturers in the last year in favor of parts makers include:

1. In these days of multiplied lines of cars and constant changes to meet the fickle public taste, car makers have been able to save on development work and tool investment by turning to independent equipment makers.

2. Belief by the car manufacturer that the engineering capability of the parts maker in particular instances is superior to that of his organization, which has not had experience with the type of work called for.

3. The patent situation in some few instances, which again is only a case of the parts maker having led in development work. Aside from carburetors and electrical equipment, which have always been almost entirely made by independents, other parts are beginning to figure in this situation, such as steering gears since four-wheel brakes and balloon tires have made

steering a critical problem. Engines may soon enter this category.

The price question is probably not more favorable to the parts maker than it has been for some time. He can produce parts more cheaply than a small manufacturer and at approximately the same price as a large manufacturer. The differential in the latter case lies usually in the cost of development and tooling up.

Many of the parts makers are some distance away from the car factories and this means freight charges that have to be taken into account, but usually there are compensating considerations. Some parts makers are closer to the sources of raw materials and they are often in a more favorable labor market than the large manufacturing areas can offer.

Price Trend Downward

The trend in unit prices has been downward, but not, on the whole, to an unprofitable extent. The day is past and gone when a car manufacturer can hope to have a reliable parts maker accept a contract on which he cannot make a fair profit. The lure of cheaper production and enhanced prestige through large contracts with car manufacturers has been overplayed and the parts maker has to be shown. Specifically, he is not going to tool up for a job unless his expenses and profit are assured in the life of the contract.

The parts makers have made money lately on the same basis as the car manufacturers—by cutting down expenses and raising output per man.

However, there is a new service that equipment makers are offering, if rumors so far lacking definite confirmation are to be believed. It is said that a good many of the parts and accessory manufacturers are now carrying stocks stored in the plants of automobile manufacturers, which are released when they are required in the assembly line, the manufacturer not being billed until they are thus released. In some instances the parts or accessory makers even provide the custodian. This obviously would be a big help to manufacturers in maintaining flexible production schedules.

Another way in which the equipment makers, or some of them, have been able to strengthen their organizations, enhance stability and bring down costs is by seeking outlets in other industries, as in the case of engine manufacturers who have sold their products for other than car or truck installations; or, in a few cases, by diversifying their products, as for example, the manufacturers who have gone into the making of radio units.

It may be argued that the recent developments are of temporary character, without long-term significance for the parts industry. "If these new cars are successful just watch the manufacturers turn to producing their own parts," say the proponents of this view. "And wait until patents on some units expire."

But even if some of the new models are in the nature of trial balloons, the equipment makers will profit in the term of their contracts, and as the automobile industry is operating today it seems likely others will be ready to step in with ideas for other jobs to test the market. Furthermore, if a car is a success as originally produced, there does not seem any obvious reason for making the heavy investment required for complete production at the factory.

So far as patents are concerned, the equipment makers can be depended upon to have new ideas ready when their present devices become public property. But most of the important patents have a long period to run anyway.

Less is heard of the old argument that the car manufacturer who produces his own part is able to be more sure of its sustained quality. The equipment maker has his own reputation to sustain and the companies in the business today cannot afford to turn out sub-standard products. A further commentary on the same subject was made by one equipment manufacturer in the following words:

"If you are eating at home you are likely to be less critical than if you are in a restaurant, aren't you? The same is true of the manufacturer who buys his parts outside. He is going to see that he gets his money's worth and to hold his business and good-will we have to see that he has the minimum of cause for complaint."

Although reference has here been made mainly to equipment rather than accessory makers the dividing line between the two groups, so far as some few important items are concerned, has been blurred for some years past. When an item that has been regarded as an accessory is adopted as original equipment the manufacturer automatically changes status. Conditions surrounding accessories shift and change, but it is not at all clear that the trend is currently toward more completely equipped cars.

But it is plain that car manufacturers are not proceeding further with the manufacture of their own accessories. One or two who attempted this have ceased the practice. With a replacement and a general jobber-dealer market the accessory manufacturer is in somewhat better position to give an exceptionally low price on large orders such as would come from car

manufacturers. But even in this field the tendency is toward a price that will pay a profit for the products sold. The replacement market was never as favorable to the accessory manufacturer as he was sometimes led to believe.

Surveying the whole parts and accessory field at the present time, it would appear that the possibilities for profitable business in 1927 are greater than for some time past. While further production economies will be needed and while competition will continue to be sharp, basic conditions seem favorable to constructive development.

Next Week—

An interesting running story of the developments and happenings at the annual meeting of the Society of Automotive Engineers held in Detroit, Jan. 25-29 will appear in the Feb. 5 issue of *Automotive Industries*.

In that issue also will be a complete account of the Chicago National Automobile Show which opens today.

Automotive Problems Pushing Engineers Into Harder Jobs

J. H. Hunt

May be called upon in future to take a more active part in management. Must be ready to work as partners with salesmen and production men.

By J. H. Hunt

President, Society of Automotive Engineers



THE engineer, the salesman and the production man are going into partnership in this automotive industry. They are going to work together. They are going to have to work together. The job is too complicated for any one department to control and we will get into that partnership just as soon as we get the breadth of view that will enable us to fit in.

Some phases of sales and advertising work are not without significance to the engineer. You have noticed advertising that read something like this: Such and such a car is the "boss of the road"; or some other car is the "most beautiful car in America"; or another car has a motor which is "vibrationless beyond belief."

That advertising might imply that there was something wrong with the mental processes of the competing organization, but that there was no comparison that was at all embarrassing as regards what that particular organization might have done before. However, when a sales manager authorizes statements to the effect that he has the smoothest car that his organization ever put out, or the most beautiful car that his company ever built, he is implying comparisons which, if not the result of the engineering department's having

THIS is a partial report of Mr. Hunt's first speech as president of the Society of Automotive Engineers, delivered at the annual dinner of the Society in New York, Jan. 13, following the official announcement of his election. Mr. Hunt, who served during 1926 as first vice-president, was nominated for the presidency at the Summer Meeting last June and was elected by mail ballot in December.

The new president is an electrical engineer. He was graduated from the University of Michigan in 1905. After spending some years as a college instructor he entered the employ of the Packard Motor Car Co. in 1912. In 1913 he became research engineer for the Dayton Engineering Laboratories. Since 1920 he has been doing research work for General Motors, being at present head of the electrical division of the General Motors Research Laboratories.

already been busy, will mean that the engineering department very shortly will be very busy indeed.

There is one other thing I should like to call attention to. One of our trade publications brought out the fact recently that if we should set up a chart and color it as sales people like to have charts, with buttons of different colors on squares of different colors, and have this chart show the location of the various sales managers at any particular moment, it would have all the continuity of pattern of a high-grade kaleidoscope.

When the engineers get pushed into executive positions and are required to be more active, that same situation is liable to apply to them. The engineer will have to be much more resourceful than he has been. Our jobs are going to be a lot more interesting than five years ago, and by the same token they are going to be a whole lot harder to hang on to.

With this increase of demand on the engineer, his influence in the organization can come back to a large extent. It is possible that again we may see a general manager who came up through the engineering office.

I know that some of the members of our Society are rather envious of other members who happen to be tied to companies large enough to support proving grounds. They feel that those of us that happen to be in a position to use a proving ground have almost an unfair advantage. All that a proving ground is, however, is a tool. It will no more give you the final answer than did the dynamometer.

If we can tie to the sales departments in the proper way (because they are really the contact with the public) they can collect the data from this world-wide proving ground of public use and get it back to us. After all, the engineer is judged not by those tests out there on the proving ground which, consciously or unconsciously, are liable to be just a little bit rigid for the thing that was supposed to be demonstrated, but he is going to be judged by what the public thinks of the job when he is through with it.

Automotive Industries recently referred to Dr. Coolidge's work with his new cathode ray tube. Because it is stated that this tube will kill a small animal at a distance, I imagine that a good many people have looked at the engineering possibilities of it as those of a million-volt mousetrap. Now I don't know whether *Automotive Industries* was entirely serious in pointing out that automotive engineers ought to be thinking about that. I am entirely serious, however, in indorsing the view that they should, not that it is going to make any difference today, but I will predict that within the lives of a majority of the people present something will come from that work that will have a very vital effect upon our industry.

When less than 30 years ago Sir J. J. Thompson

was doing his first work with the electron, he had no thought whatever regarding the prosperity of the natives of the East Indies, and yet his work has greatly affected it.

Automotive engineers need to do some star-gazing but it is absolutely necessary to keep our feet on the ground. We must not let this pressure that is being thrown on us cause us to consent to any changes that are not carefully worked out.

Can't Take Any Chances

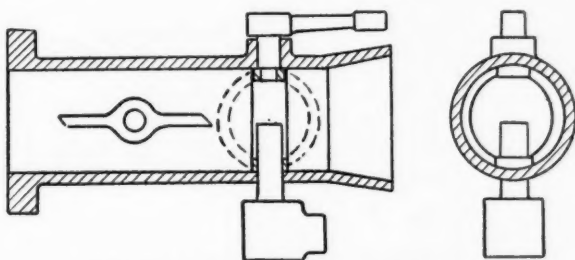
The difficulties and troubles that can come from an ill-considered change in these days of tremendous inventories, and the absolute necessity of maintaining the morale of the fellow who is trying to sell the car, make it impossible for us to take any chances.

There is another feature of our present-day work that is of considerable importance to our younger members. As organizations increase and as the problems seem to be principally the problems of refinement rather than the development of new inventions, the tendency is for a man to be pushed to a detailed job and results in undue specialization. That gives younger automotive engineers a chance to do real work, valuable work, much sooner than they would otherwise get the opportunity.

I have nothing to say against the specialist. All of our recent development has been based upon the work of the specialist, but unless a man has that type of mind which is thoroughly happy in trying to master one detail, his opportunities are going to be limited, unless he keeps track of what is going on and maintains a broad viewpoint.

Recent French and German Developments

AMONG the comparatively few automobile manufacturers who still produce their own carburetors is Panhard & Levassor, Paris, France. The firm has recently introduced an improvement by which the richness of the mixture produced by the carburetor can be controlled in a very simple way. As shown in the accompanying drawing, an annulus is introduced into the throat of the carburetor, concentric with the axis of the spray nozzle. It is mounted on trunnions and can be turned around its own axis by means of a con-



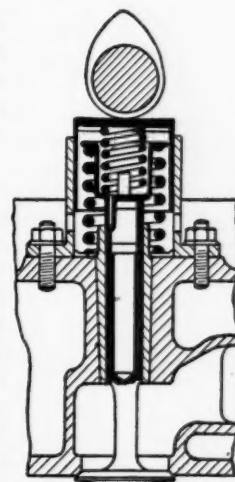
Panhard-Levassor mixture control device

nection to a control device convenient to the operator. When it is in the position indicated in the transverse section, the throat is comparatively small, the air speed high and the nozzle subjected to the full force of the suction due to this air speed, hence the mixture will be comparatively rich. On the other hand, when the annulus is turned so its plane is in the direction of air flow, it restricts the air passage much less, and

as, moreover, the nozzle is shielded from the effects of the air stream, the amount of fuel introduced will be much less and the mixture will be leaner. The quality of the mixture, of course, changes gradually as the annulus is swung around its axis.

An arrangement for direct-actuated overhead valves employing two coiled springs in series has been patented by Siemens & Halske, the large German electrical firm, which also manufactures the Protos car and Siemens radial aircraft engines. It is stated in the specifications that the idea of an auxiliary spring serving the object of taking the slack out of the valve mechanism and keeping the follower at all times in contact with the cam, is not new. However, the auxiliary

springs formerly used were comparatively weak and entirely incapable of absorbing the forces that result from the release of the main valve spring. In the design referred to the auxiliary spring is so proportioned that the closing pressure of the main spring is freed only gradually after the valve has seated, through the release of the auxiliary spring.



Siemens valve-actuating mechanism employing double springs

"Age of Refinement" Brings Many Detail Changes in Design

Manufacturers constantly watching for opportunity to make improvements, no matter how small. Study of latest models brings to light many interesting features of this character.

THIS might well be called the age of refinement in automobile design. Manufacturers are watching constantly for opportunities to make improvements and no detail is too small to be overlooked. Consequently, a study of the new crop of cars with these minor changes in mind brings to light many interesting features, a few of which are discussed here.

In a recent article in these columns, the most logical form for the section at the ends of forged front axles carrying brakes was discussed. A very neat design is found on the new Reo car and is illustrated by the accompanying sketch. Adjacent to the boss for the knuckle pin the axle section is of solid round section, and it emerges very gradually into an I-section.

Non-metallic spring shackles are gaining in popularity, about one in eight of this season's models being fitted with either the rubber or the fabric type. With rubber shackles the weight of the chassis rests on a cushion of flexible material, while with the other type it is suspended from the chassis springs by means of straps or disks of rubberized fabric. Both types have the advantages of requiring no lubrication, adding slightly to the flexibility of the suspension and being permanently free from rattles and other noises. In

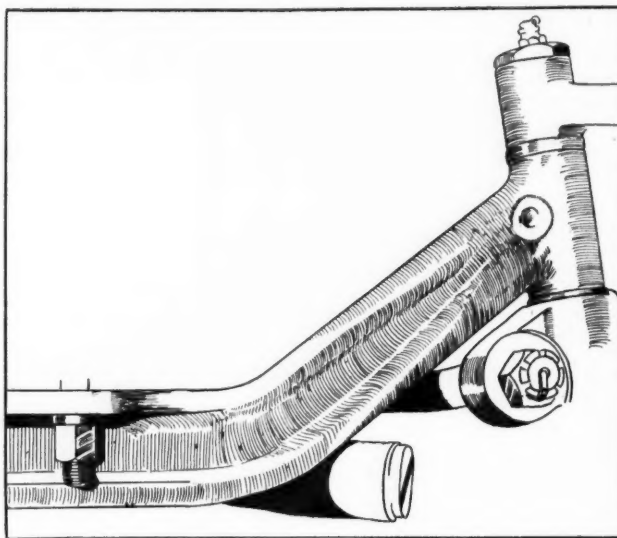


Fig. 1. Reo front axle. Solid round section emerging gradually into an I-section

point of extent of application, the rubber type has a slight lead over the fabric type at the show, the former being fitted on 7.8 and the latter on 5.5 of the chassis models shown.

Fabric suspensions also have proved quite popular for torque tube front end supports, and the way in which this support is worked out on the Cadillac car is shown in one of the illustrations herewith. The tube is connected to a frame member extending longitudinally between two cross members. A pressed steel bracket is secured to the underside of this member and a set of three strips of the fabric are bolted with their up-

per and lower ends to the bracket, while the forward end of the torque tube is fastened to the strips by bolting at their middle. The advantages are the same as in the case of non-metallic shackles, and the advantage of a suspension requiring no lubrication is even greater in this case, because of the inaccessibility of the support at the middle of the chassis.

One of the few remaining things on an automobile that still give the owner cause for grumbling is chassis lubrication, which is a tedious and messy job, and it is therefore no wonder that engineers and inventors are concentrating their efforts on the improvement of this feature. Only 2 per cent of all chassis now retain

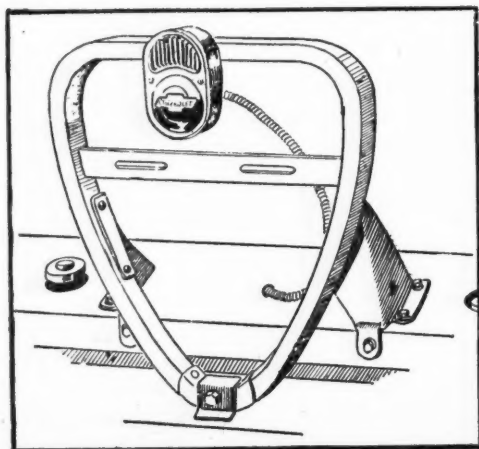


Fig. 2. A new spare tire carrier which has been introduced by Chevrolet

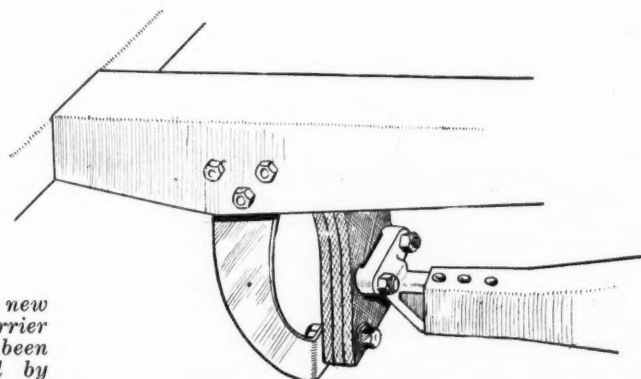


Fig. 3. Cadillac fabric suspension for torque tube front end support

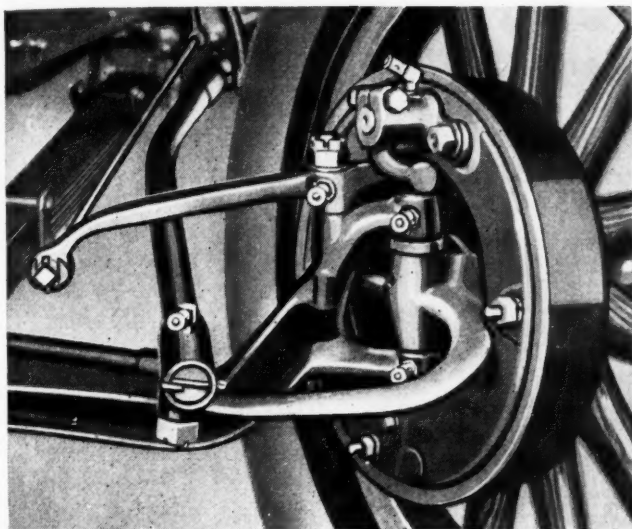


Fig. 4.
(left), new
method of
operating
Bendix
front-wheel
brakes



Fig. 5.
(right),
automatic
adjuster
for Morse
chain front-
end drive

the old system of lubrication by individual grease cups. Oil cups with or without wicks are used to a certain extent. The pressure gun system, which initiated the ousting of the old grease cup systems, now is employed on 78 per cent of all chassis models, while the latest system, that of the lubrication of all chassis bearings from a single central point, has been adopted for 13 per cent of the chassis so far.

Fig. 4 illustrates a method of operating front wheel brakes which has been developed by the Bendix Brake Corp. in addition to its original method, by short, universal-jointed shafts extending from the brake to the frame. This type of brake mechanism is used on several of the newer cars and requires a front axle of special design. A horizontal lever having one long and one short arm is pivoted on a stud rising from the axle fork. When the brake is applied the center point of contact between this lever and the short lever secured to the brake camshaft is substantially in the axis of the knuckle pin so that the setting of the brakes will not be affected by any steering motion. This construction evidently is simpler than that in-

volving the use of horizontal shafts with universal joints.

Most of the front-end drive installations made by the Morse Chain Co., Syracuse, N. Y., so far have been of the manually adjusted type, but the front-end drives which this company furnishes to Cadillac and Pierce-Arrow are automatically adjusting. This adjusting mechanism is combined with an idler gear supported on a stud secured into the front wall of the crankcase. The stud is flattened and has a slide mounted upon it which is of cylindrical outside form and has an oblong slot through it lengthwise. A coiled spring within a hole in the stud tends to move the slide into such a position that the chain is tightened. Ratchet teeth are cut in the wide faces of the stud, and two pawls are pivoted in recesses in the stud and forced into engagement with the ratchet teeth. The side, upon which the idler sprocket is mounted, is thus rigidly supported by these ratchet teeth, and after the joints of the chain have worn sufficiently the pawls will take up a tooth and the chain will be tightened.

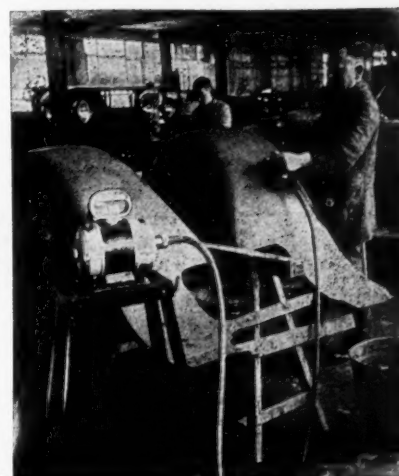
Biax Body Polishing Equipment

A MACHINE for rubbing down and sand-papering lacquer finishes on automobile bodies has been developed by the Biax Flexible Shaft Co., New York. The main operating part of the equipment is a special gear train which changes rotary motion transmitted from an electric motor through a flexible shaft to a reciprocating motion in two pads which thus are moved back and forth in opposite directions.

The 1/3 hp. ball-bearing motor operates at 1500 r.p.m. and this speed is maintained in the reciprocating parts so that the pads cover a distance of 290 ft. of car surface per minute. The working head weighs 1 1/4 lb. and can be guided with one hand. The pads are fitted to take waterproof sand or emery-paper, which may be attached in five or six layers so that when one is worn through it is simply torn off and a new surface presented without loss of time.

Because of the rapidity with which the pads move it is said that coarse paper can be used without damage to the surface, thus enabling still faster production schedules to be maintained. The power drive is mounted on a truck which may be wheeled alongside the work. A rubber tube about 10 ft. long is provided

when water is needed for the rubbing operation. The flexible shafting is of the coil spring type and is guaranteed for one year against breakage.



Biax rubbing
down equipment
being used in
sanding an auto-
mobile fender

1927 Will be Profitable Year for Truck Manufacturers

Total output not expected to exceed that of 1926, but basis on which business is done will be sounder than ever before. Leading executives comment on outlook.

By Norman G. Shidle

THE current year offers better possibilities for sound, profitable operation among motor truck and bus manufacturers than any previous period, in the opinion of many of the most important executives in the industry. Quizzed as regards what 1927 holds for the truck industry, most executives are found to emphasize:

1. Factory production in 1927 may very well turn out to be no greater than it was in 1926; possibly it will be a little less.

2. But, 1927 will see an overwhelming majority of commercial vehicles sold on terms which insure credit safety and certain profits to the manufacturer. The more conservative financing methods brought into vogue within the last six months are here to stay.

3. The constantly growing replacement market will stabilize the truck industry more and more every year.

4. The truck and bus have become an integral and normal part of the transportation scheme of the country; as vehicles they no longer have to be sold to the commercial public.

If there is anything in unanimity of opinion, the foregoing prognostications certainly will come true. A few men, high in truck company councils, are dissenting in some particulars from the views outlined, but an overwhelming majority appear to be seeing the situation through exactly the same spectacles.

It is definitely encouraging—as well as somewhat unusual—to find a large group of executives in the automotive industry who find it possible to see sound, profitable business ahead without any expectation of setting new production records. This fact alone portends the arrival of a new era in automotive thinking and operations and almost certainly is the herald of greater stability and a steadier production curve in the motor truck industry.

The worst days of motor truck retail financing already are behind, if the determinations being expressed by executives today may be taken as a reliable indication of future practices. Almost without exception, truck makers are looking toward sounder retail financing conditions this year than ever before. On this

point both large and small producers are in general agreement, however, many points of difference may arise as regards some other phases of truck marketing.

A. J. Brosseau, president, Mack Trucks, Inc., for example, stated his feeling on this matter quite definitely in a letter written the other day in response to a query from *Automotive Industries*.

"Production during 1927," Mr. Brosseau said, "will be somewhat reduced because of the disposition on the part of manufacturers to adopt a more conservative credit policy. This may temporarily reduce the volume of business, but the effect will be good for all concerned and tend to stabilize the industry."

Following along the same line of thought is the statement made by John S. Clarke, vice-president, Autocar Co., in reply to a similar query. Mr. Clarke says:

"We believe that truck output as a whole may not be as large in 1927 as it has been in the past year, but we think it will represent better business for the truck companies individually than past records show. It is absolutely essential that the manufacturers and distributors of trucks realize the poor policy of building volume at a sacrifice of profits and by extending long terms and accepting unsound credit risks."

Commenting more specifically on Autocar policies in particular, Mr. Clarke continued: "Early in 1916 the Autocar Co. put into effect a very greatly restricted policy in these directions and we are more than pleased with the results. We are glad to note a determined effort now being made by a number of truck manufacturers to improve conditions which are so vital to the successful future of the truck industry as a whole."

Business on Firmer Basis

An important executive of a smaller company expresses like views, when he says: "In my opinion the number of trucks and buses that will be sold during 1927 will not be any greater than during 1926, but the basis upon which the business is done will be much more sound and profitable to the manufacturer."

William Schacht, president, G. A. Schacht Motor Truck Co., believes "that the movement now on foot to place retail financing of motor trucks on a more conservative basis is a very constructive one which may temporarily retard sales but benefit the entire industry in the long run." Mr. Schacht adds: "We ourselves are scrutinizing our time paper very care-

fully and are giving particular attention to obtaining the required cash down-payment and to keeping the deferred payments within 18 months. We believe that the outlook for 1927 is very encouraging and that if a concerted effort is made by all truck manufacturers to do a saner business with respect to financing, trade-ins, etc., profits will be greater even though the volume of business may be less."

These expressions are typical of those obtained from a large group of truck executives, a somewhat less optimistic view being recorded only by a very few. Of this latter group, the statement of conditions as they appear on the Pacific Coast to Watt L. Moreland, vice-president, Moreland Motor Truck Co., is particularly interesting.

"It is our opinion," Mr. Moreland writes, "that the truck business in this territory (California) will not be as great in 1927 as in 1926. Our reasons are as follows:

"Pacific Coast States for the past few years have been largely looked upon by the eastern manufacturer of motor trucks as an outlet for his surplus trucks and trucks have been shipped here in large quantities and have been forced on the market. They have been sold regardless of terms, down-payments, value of trade-ins, or the credit of the purchaser. The result has been a general demoralization of new truck prices, of used truck prices, a large accumulation of used trucks in the hands of dealers and the placing of more trucks in the hands of users than there is work to keep them busy. There are hundreds of idle trucks.

Much Frozen Capital

"Manufacturers, through their branches and the few truck dealers in existence, have large amounts of capital frozen, represented by past-due paper on new trucks, on used trucks taken in as part payment for new trucks, and new trucks repossessed because of non-payment.

"The tightening up of sales conditions forced by the banks and finance companies, in our opinion, will be reflected by a considerable reduction in new truck sales. It will probably take two or three years before the truck situation is balanced, and during this period of time the sale of new trucks will be below the past two or three years' average."

The stabilizing influence to be exerted in the future by the growing replacement market is emphasized by several executives. J. W. Stephenson, president, Indiana Truck Corp., for instance, says on this subject:

"The replacement market is ever widening and with a constantly new source of buyers available, created by new uses for good motor trucks, it appears to me that 1927 will be good for those who are in a position to take advantage of it."

Apropos of profits and credits, Mr. Stephenson adds: "I believe that a fair profit will be earned by those truck makers who are organized properly in the manufacturing, administrative, selling and service departments of their businesses. I also believe that credits will bear more scrutiny and that greater care will be exercised in retail financing."

THERE is an unusual degree of unanimity among truck manufacturers at the present time regarding truck business prospects for 1927. Very few of them expect total production to go beyond the 1926 figure, but the majority believe that profits will be equally as good, or better, due to the application of sounder sales policies.

This summation is drawn from letters of comment on the situation received by *Automotive Industries* from a number of representative truck builders. These comments will be found in the accompanying article.

The replacement market already has become a factor of real importance in estimating truck sales for any given year. While accurate calculations of this secondary market are difficult because of the variables involved in available statistical data, it would appear as though somewhere between 150,000 and 200,000 commercial vehicles will have to be built in 1927 solely for the purpose of supplying replacement needs. This, quite obviously, is an important proportion of the total truck market at the present time.

A generally optimistic outlook is expressed by most truck executives in talking about the prospects as a whole. Many companies reported their production to be several weeks behind orders as they started the new year, while the present dominance of the motor truck as a transportation unit in most lines of business is cited as an additional fundamental reason for optimism about the future.

J. R. Spraker, president, Atterbury Motor Car Co., for example, says that "one of the best things we can say is that we entered 1927 already four weeks behind on deliveries."

M. L. Pulcher, president, Federal Motor Truck Co., paints a bright general picture in the following words:

"The Federal Motor Truck Co. believes that the motor truck is the greatest potentiality on the business horizon. In support of this confidence, its program for the coming year is based on multiplying the factory output of 1926 by two.

"Both the truck merchant and the truck user today are facing scientific management. It must be accepted and employed if the truck is to render the service for which it is built.

"Any unrest which may be present in the motor truck industry is purely adjustment and momentary in its reaction. This country is growing at the yearly rate of 10 per cent increase over its current population. How are all of these people going to be cared for except by motor trucks? There are approximately 5,000,000 vocational prospects in the United States, whose needs run from one truck to over 100 trucks as the different business classifications may demand. Less than 3,000,000 trucks are under license. A great many are becoming useless daily. What can seriously touch the industry under such circumstances?"

Interesting also are some of the comments made by B. A. Gramm, president, Gramm Motors, Inc. Mr. Gramm writes in part: "It does not make any difference, according to my judgment, whether times are better than 1926 or a great deal poorer than 1926. You cannot stop the motor bus and the short and long-distance motor truck in the next two years, for the reason that living conditions have so changed that we are absolutely dependent on this new mode of transportation for the very economic existence of our people.

"It is true that a great many of our bus builders—many of them new companies that have come into the field because of a new industry—will fail because they do not know cost finding and do not operate under sane economical schedules. But all of this will be worked out

in the next two years, and we are headed, I am sure, toward sound credit conditions.

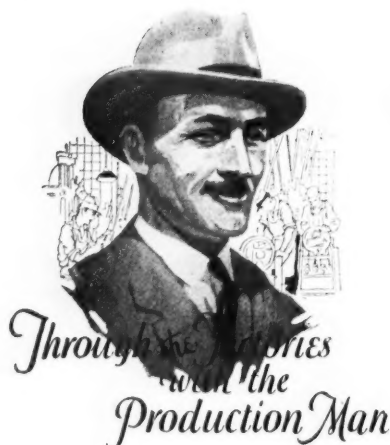
"I am willing to make the assertion that 1927 and 1928 will see buses and trucks sold on sound credit terms. I am a firm believer that paper should never extend beyond 18 months and that we should gradually work that back to not over 12 months, and never under any conditions take less than 25 per cent cash down.

"I am also going to put into effect in our own company a differential in the selling price between the cash buyer and the time buyer of at least 8 per cent.

And here is what George A. Brockway, president, Brockway Motor Truck Corp., says: "I cannot see a cloud in sight for first six months of the coming year.

"The writer is of the opinion that the truck business is getting on a better basis so far as wild deals are concerned, and there is no reason why the manufacturers that are well-financed and well-managed should not show substantial profit and progress in the future."

Altogether, 1927 looks like a year of sound business, reasonable profits and increasing stability in the motor truck industry.



Mold Baking Methods Improved With Electric Heating

Several foundry production problems eliminated through adoption of new process at Gleason Works.

SEVERAL foundry production problems have been eliminated by the use of electric heating equipment for drying molds at the Gleason Works, Rochester, N. Y. While this process is used for baking rather large machinery castings, it presents possibilities for steady production work on somewhat smaller castings and is directly applicable to the production of experimental and incidental castings.

In the Gleason foundry, these molds are rammed up in conditioned sand. The cope then is lifted and the pattern removed. As shown in Fig. 1, a cluster of electric heating units is hung on rods within the mold. Since this photograph was taken, steel shields have been substituted for the fire-brick which is shown piled around the edge of the drag flask. The heating units are grouped in a nest of six, each unit being about 18 in. long and 1½ in. in diameter. In this particular case, two additional units are hung lengthwise from another rod in order to apply heat to a relatively isolated deep portion of the mold.

The heating units forming the cluster are in series and are connected to a 230-volt line by asbestos-covered wire. Outside of the flasks, these wires connect with rubber-covered cable which leads to a safety switch. After the heating elements

are in place, the cope flask is lowered on to the steel guards which replace the fire-brick shown. While the temperature within the heater assembly is considerably higher, the heat at the surface of the mold averages around 500 deg. Fahr. The current consumption of the heater assembly is just over 7 kw. Two to four hours are required for baking or drying a large mold which requires a flask measuring 48 in. x 48 in. x 36 in. deep.

Following the baking process, the heating equipment is removed and the mold is dressed with plumbago, talc, etc., so that the surface of the finished casting is of uniform high quality. As no handling of the flask is involved, breakdowns and chips have been eliminated. Ripples and waves also are eliminated from the surface of the iron. The entire casting has the appearance of having been poured in baked cores.

In the regular routine of the Gleason foundry, even these large castings are molded, baked and poured in one working day. Foundry executives are particularly enthusiastic over the elimination of the fumes and general difficulties which usually accompany the use of gas torches, salamanders, etc. The absence of any necessity for handling, such as the delivery to an oven, also represents a big saving.

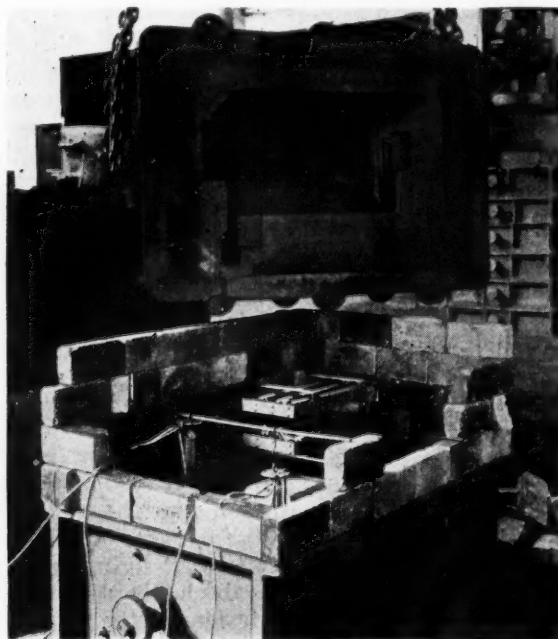


Fig. 1. Electric heater units convert green sand to baked molds with no handling, smoke or fumes. Temperature of 500 deg. is maintained at surface of mold for two to four hours

Just Among Ourselves

They Still Fight to See the Shows

THE dear old public still likes to look at new, handsome, attractive automobiles. The motor car now is a utility, to be sure, but it has a vital place in the emotional life of the average man which is not equalled by any other necessity which he buys. Men in the industry have been heard to wonder how many more years we could expect the public to pay good money to come in to look at merchandise being displayed for sale. New York show attendance records this year indicated a greater public interest than ever before. Conditions at subsequent shows are bearing out that idea strongly. In Philadelphia, the show this year had a rather good attendance on the opening days despite one of the worst snowstorms in several years. It looks already as though the Coliseum in Chicago were going to be jammed; prospects in Cleveland are excellent. The automobile show still is a vital, active and potent force in automotive merchandising and bids fair to continue in its powerful role for some decades to come.

* * *

Few Changes Made in Heads of Companies

DESPITE rather rapid fluctuations in the sales and sometimes in the engineering personnel, a rather remarkable stability among chief executives has been an outstanding characteristic of the automotive industry almost since its inception. Relatively speaking there have been few changes made in company presidents through the past quarter of a century, considering the large number of companies in operation, the radically changing management necessities and the very rapid growth of the business. Up until two or three years ago, a

large proportion of the names in any list of company presidents were names which would have been on a similar list compiled five or perhaps even ten years before. In the last two years, to be sure, a goodly number of changes have been made, but most of the new names appearing on the role of presidents often seem to be the natural outgrowth of retirement from the firing line of men who, while still capable and vigorous, no longer are eager for the gruelling struggle of the day-to-day merchandising and production battles. In a very real sense, it may be said that the second generation of automotive executives is just about reaching its maturity.

* * *

Second Crop Began to Sprout in 1925

THE first large crop of chief executive changes came, it seems, in 1925. This year brought newly to the presidential chairs of passenger car companies men such as A. R. Glancy, Edward Ver Linden, I. J. Reuter, E. L. Cord, L. P. Fisher and others, who now must be considered as seasoned residents of our automotive Olympus. Last year, 1926, lifted into command of passenger car company destinies another half-dozen of new personalities. Early in the year, H. J. Leonard took over the wheel at Stearns; then came the Dodge change which resulted in E. G. Wilmer's accession to the presidency. Later in the year, Harry Bassett's untimely death was followed by E. T. Strong's being made president of Buick; realignment in Hupp's roster made D. Young president and C. D. Hastings chairman of the board. And just before the close of the year a similar change at Paige brought W. A. Wheeler to the presidency as H. M. Jewett became chairman

of the board. Gradually the old order changes . . . but the groundwork and the foundations laid by that old order are so sound and so firm that the aims as well as the task of the new order largely can be building and developing, rather than digging and relaying bases.

* * *

Pooling of Interests Likely to Continue

POOLING of interests among automotive manufacturers probably will continue through 1927 as it did during 1926. While none of the important mergers rumored took place in the passenger car field last year, the rumors continue. In the parts, accessory and truck fields, numerous combinations have been made in the last 12 months, most of which portend a strengthening of the interests involved and a general stabilization in the industry as a whole.

* * *

Companies Striving for Complete Lines

WHILE further mergers of passenger car companies still appear quite possible, certain possibilities of combination which existed three or four years ago seem now to have been minimized by the effort on the part of a number of big producers to build, within their own organizations, a complete line of automobiles. With the increasing variety of models in certain outstanding cases, speculative talk of mergers naturally centers for the moment chiefly about those companies whose efforts still are confined to one or two price classes. It is well to remember, however, that personalities, as well as financial considerations, have a most important bearing on anything that may or may not happen as regards mergers.—N. G. S.

Pyrometer of Total Radiation Type Gives Quick Readings

New development of Pyrometer Instrument Co. measures total radiation of a hot body and temperature is then determined by Stefan-Boltzmann law. Special form of thermo-couple used.

A NEW pyrometer of the total radiation type and known as the Pyro is being placed on the market by the Pyrometer Instrument Co., 74 Reade Street, New York. With this type of instrument the total radiation of a hot body (i. e., both heat and light waves) is measured, and the temperature of the body is then determined by the Stefan-Boltzmann law, according to which the radiant energy emitted from any perfectly black body is directly proportional to the fourth power of its absolute temperature.

In commercial instruments of this type a fixed fraction of the total radiation of such a body is concentrated on a sensitive element, generally a thermo-pile consisting of a number of small thermo-couples connected in series, which is connected to a sensitive galvanometer.

Prof. Fery experimented with a single thermo-couple and endeavored to increase the electromotive force induced in it by concentrating a large proportion of the radiant energy upon it. It seems that he did not succeed in his object with a focusing lens, and in the pyrometer developed by him a concave mirror is used and has the thermo-couple placed at its focus, where a large proportion of the radiation is concentrated upon it.

From the time of Fery's work, concentration of the radiant energy by means of a concave mirror has been the standard practice, but recent research work by Dr. Hase is said to have made the use of an objective lens not only possible but more effective than that of the mirror.

In the Pyro radiation pyrometer, embodying the results of these researches, radiant energy is concentrated on the thermo-couple by a clear quartz lens 45 mm. (1.77 in.) in diameter and produces an effect fully as great as would a base metal thermo-couple if placed directly at the source of the radiation. A special form of thermo-couple is used, consisting of a very thin wire secured to a thicker supporting wire, a receiving disk

being placed over the joint to improve the receptivity for radiation. The whole couple is then mounted in an evacuated glass bulb and adjusted in the axis of the optical system. This is clearly illustrated in the sectional view of the instrument reproduced herewith.

As a result of the very small mass of the thermo-couple, it responds rapidly to temperature variations, and, besides, a higher e.m.f. is developed, because for a given amount or rate of radiation the thermo-couple reaches a somewhat higher temperature. A more rapid response means that a reading can be taken in less time, and that very rapid temperature variations can be detected. It is stated that a single reading can be taken with the Pyro instrument in from $2\frac{1}{2}$ to 3 sec. As indicative of its sensitivity, it is stated that if a standard Pyro pyrometer is pointed at the sun or at an arc light, the material composing the thermo-couple is damaged by volatilization.

The instrument is of the "fixed focus" type, in which the focal distance between lens and the thermo-couple is not adjustable by the operator. A "screen" with a central opening is interposed in front of the thermo-couple for the purpose of controlling the "distance factor" and to cut off "side-rays" radiated from outside the field of vision. The average Pyro has a "distance factor" of between 24 and 30, depending on the temperature range, i. e., the distance of the instrument from the aperture may be as great as 24 to 30 times the diameter of the aperture. The makers advise the use of furnace sight holes of larger diameter than the objective lens, in order to insure a full field of vision and radiation.

The instrument is provided with an eyepiece, which allows full view of the "hot body" sighted on; sliding adjustment of the eyepiece brings the latter clearly into view. Within the distance-factor limit of the instrument, the actual distance between the hot body and the objective lens is immaterial, hence correct sighting is quite easy. Fig. 3 shows two forms of

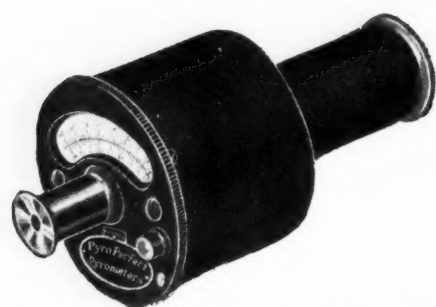


Fig. 1. Pyro "total radiation" pyrometer

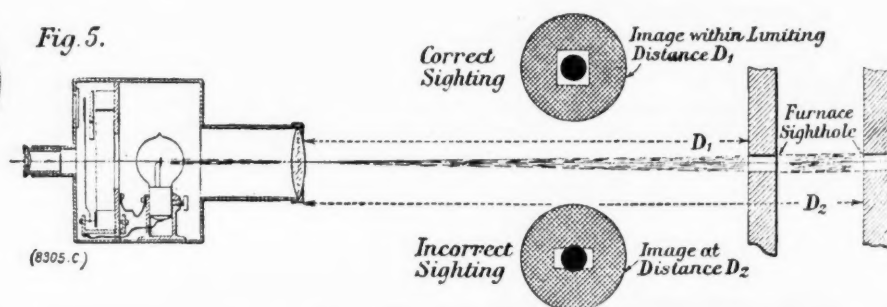


Fig. 3. Diagram for use in sighting Pyro pyrometer

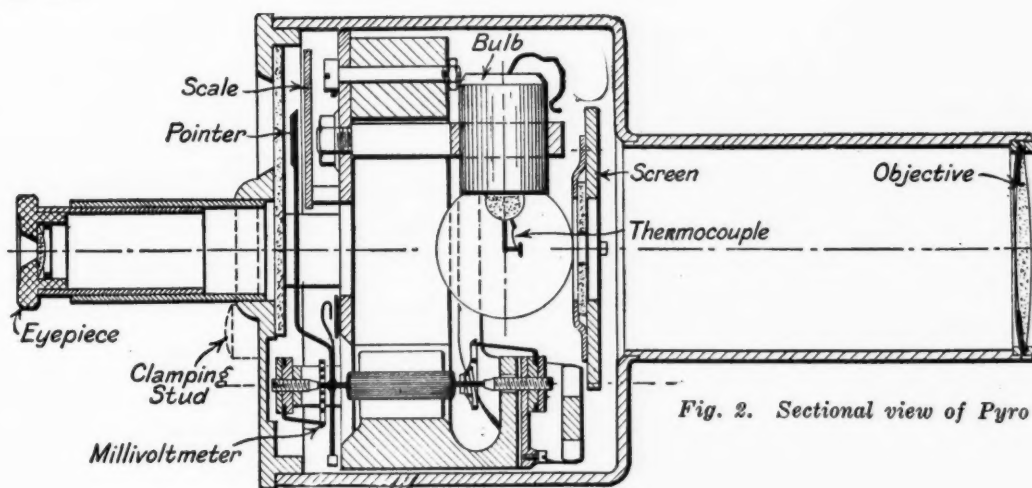


Fig. 2. Sectional view of Pyro pyrometer

image as viewed through the eyepiece, and in these the central black disk represents the thermocouple, the surrounding white square (or rectangle) represents the view of the sight hole or hot body, and the large shaded circle shows the aperture of the sight hole. When the instrument is correctly sighted, the image of the sight hole completely covers the black disk on all sides, but if used at a distance exceeding the limit of the distance factor, the black disk is not covered correctly by the image of the hot body, and

low temperature readings therefore would be obtained.

In the Pyro instrument the milli-voltmeter, thermocouple and optical system form a single unit, and cable connections and a focusing adjustment are thus eliminated. When an observation is to be made the operator frees the pointer by pressure of the thumb. Much stress is laid by the makers on the compactness and low weight of the instrument, which are said to adapt it particularly for periodic checking of fixed pyrometer installations, and for similar purposes.

Cletrac Adds Larger Crawler Model

A FOURTH Cletrac model has been added to the line of the Cleveland Tractor Co. It has a 75 hp. drawbar rating and is said to be the most powerful crawler tractor now in production in America. The new tractor is designed especially for use in road building and contracting work. A six-cylinder 6 by 7 in. engine is fitted, having a four-bearing crankshaft. Pressure lubrication by means of double pumps is used for the engine. Two fuel tanks are provided, one on each side of the engine, with a capacity of 50 gal. each. The carburetor is a Stromberg 2-in. and the intake manifold is exhaust-jacketed. Delco semi-automatic, dual ignition is used, while the starting and lighting equipment is the Leece-Neville 12-volt system which is combined with a Willard 12-volt battery. All fuel tubing is of annealed copper, which is of importance on a tractor on account of the vibration. A Pomona air cleaner is fitted. The radiator is of the fin-and-tube type and has mounted behind it a six-blade, 33-in. fan driven by a V-belt.

The clutch is the Hilliard multiple-disk type and is provided with a clutch brake. The transmission is of the selective type and gives three forward speeds and reverse. All gears are of alloy steel, heat-treated, and their shafts are supported on ball bearings. The three speeds are 2.47, 3.54 and 5.56 m.p.h., respectively. Steering is by the same mechanism as used on the other Cletracs.

Lower track wheel assemblies have cast-iron bearing boxes with hardened steel shafts. Lubrication is by the "one-shot" force feed system. Each of the two truck frames is equipped with a pump. Drive and idler sprockets are of cast steel with manganese steel rims riveted to them. The drive sprocket assemblies are supported on extra large shafts mounted in heavy-

duty ball bearings. The front idler sprockets have the same type of bearings as used in the lower truck wheels, lubrication of these bearings being by a pressure grease cup.

Track shoes are 20 in. wide, while the grouters are 26 in. wide and 3 in. high. The rollers and bushings are nickel steel tubing, heat-treated. The overall length of the machine is 180 in.; the width, 98 in. and the height, over the cab, 116 in. The ground clearance is 12 in. From center to center of tracks is 70 in. The power pulley has a diameter of 20 in. and a face width of 13 in. and the belt speed is 2750 ft. p. m.



Cletrac "75" crawler tractor

THE FORUM

Efficiency Formula for Superchargers

Analysis of Dr. Treves' paper leads to belief that the power requirement shown is too high. Low efficiency is indicated.

Editor, AUTOMOTIVE INDUSTRIES:

In your last Engineering Issue appeared an article by Dr. Treves on "Supercharging Investigated from the Thermodynamic Standpoint." Dr. Treves' paper treats an important subject with extraordinary thoroughness, and for that reason may be considered of lasting merit and usefulness. It is for the engineer who wants to make Dr. Treves' deductions a basis for his calculations, that I wish to point out the following:

The power requirement for the supercharger, as expressed in equation (4), page 977, appears to be too high. In deriving this equation, Dr. Treves starts from the theoretical work required to compress 1 kg. of air adiabatically from an absolute temperature of T_o to an absolute temperature of T_c and expresses this work—near the foot of page 976—in the form $427 C_p (T_c - T_o)$. It would appear, however, that the expression should read: $427 C_v (T_c - T_o)$, C_p and C_v , meaning the specific heat of air under constant pressure and constant volume, respectively.

For my explanation I shall employ—in conformity with Dr. Treves' article—the metric units.

The general and fundamental thermodynamic equation concerning the transformation of a gas from the state "1" to the state "2", either by expansion or by compression, is:

$$Q = G c_v (T_2 - T_1) + AL,$$

where Q is the heat quantity, imparted to or extracted from the gas, in calories; G , the weight of the gas in kg.; C_v , the specific heat of the gas under constant volume in calories per kg.; T_2 , and T_1 , the absolute temperatures in centigrades pertaining to state "2" and state "1" respectively; A , the metric heat equivalent $= \frac{1}{427}$, and L , the mechanical work, gained or expended during the transformation, in meter-kg.

For adiabatic expansion or compression, where heat is neither imparted nor extracted, Q in the fundamental equation becomes 0. Then

$$0 = G c_v (T_2 - T_1) + AL$$

or

$$L = \frac{G c_v (T_2 - T_1)}{A} = 427 G c_v (T_2 - T_1).$$

For 1 kg. of gas and considering only the absolute value, not the sign of the work, we have then

$$L = 427 c_v (T_2 - T_1).$$

Applied to our supercharge case, this equation reads now

$$L = 427 c_v (T_c - T_o).$$

The difference of this equation from the one given by Dr. Treves, viz.:

$$L = 427 c_p (T_c - T_o)$$

is considerable. For air,

$$c_v = 0.169, \parallel c_p = 0.238 \parallel \frac{c_v}{c_p} = 0.71, \parallel \frac{c_p}{c_v} = 1.41.$$

It would appear, then, that equation (4) of Dr. Treves which again employs the factor C_p instead of C_v , gives the horsepower requirement of the supercharger too high in the ratio $\frac{1.41}{1}$ and that the power consumed by the supercharger in the numerical example of the 2-liter racing engine should be only 5.66, 10.4 and 16.4 hp. respectively, instead of 7.98, 14.65 and 23.15 hp.

If, on the other hand, these last three figures were found by actual brake tests, it would follow that the polytropic efficiency of the Roots type blower employed, η_{ca} , is still lower than given in the article. We would have $\eta_{ca} = 0.39$ to 0.43 instead of $\eta_{ca} = 0.55$ to 0.60 . If that is the case, it would indicate that there are yet great possibilities for the improvement of the supercharger itself.

WILLIAM SAMUELS.

British Motorcycles

Editor, AUTOMOTIVE INDUSTRIES:

In the issue of Oct. 21, I read with not a little interest the report of the British motorcycle exhibition at Olympia by M. W. Bourdon. May I, through the medium of your columns, point out several errors in connection with this report?

You show a "Brough Superior" motorcycle, known here as the "SS 80" model, and describe it as the "Rolls-Royce" of British motorcycles. This title was not conferred upon the "SS 80" but upon the "SS 100," which has overhead valves, Harley type forks and is guaranteed to do 100 m.p.h. as sold to the public and costs £170. It has wonderful steering and road holding properties, and such a machine was once ridden 95 m.p.h., hands off, by a tester. Also you make mention of a "Victor" motorcycle. Its correct name is "Coventry Victor."

Further on we come to the following: "B.S.A., by introducing a new 5 hp. overhead valve model (push rod operated), has a range of 13 models for 1927. The new model is of a purely sport type and it is offered for an extra £5, £270 in all." What is meant by this I cannot understand, but I would point out that the correct price is £65, not £270.

A very interesting machine you should have included in your description is the "Scott" water-cooled, 2-cycle, two-stroke. The latest "Scott Flying Squirrel" is of 500 cc. and is good for 80-90 m.p.h. The engine has only five moving parts.

ERNEST A. WRIGLEY,
London, England.

Compression and Thermal Efficiency

Editor, AUTOMOTIVE INDUSTRIES:

In your issue of Nov. 18, in the article "Engine Efficiency Gain of 20% Now in Sight," the author comments on the different numerical values obtained when using two different methods for showing the gain in work from increasing the volumetric ratio of compression from 4.5 to 7.0.

The discrepancy in the results is the difference between 19 and 26 per cent. This difference is so large that it invites attention. I should like, therefore, to suggest consideration of the following explanation of this discrepancy. Since your interpretation of the air card efficiency is standard practice, it seems likely that there are limitations to the other equation, that on page 845, which has been used to parallel the findings from the efficiency equation.

In a comparison of the gain in work from a gain in efficiency, should we not consider the engine as being supplied in both cases with the same number of heat units in the mixture? Given the same strength of mixture, this would mean having the same volume of mixture within the cylinder in both cases at the beginning of the compression stroke. This assumes, of course, the same temperature and pressure at that instant. Now if the total volume of mixture at the beginning of compression is the same in two cases but there is a different ratio of compression, then evidently the piston displacement cannot be the same in both cases, which is not, however, in agreement, I believe, with the conditions used on page 845.

Viewed from a somewhat different angle, a gain in efficiency due to an increase in the ratio of compression connotes a gain in work due to increased expansion. In order to make a diagram to illustrate this result it would be necessary to change Fig. 1, page 844, so that both diagrams have the same zero of volume and the same total volume, but with the clearance volume in each case laid off from the zero volume line rather than the line for zero piston displacement. This change would make the piston travel greater with r equal to 7.0 than when equal to 4.5, which is consistent with the following equation. Let E represent the efficiency; Q , the heat supplied in the mixture; W , the indicated work in an ideal engine. The subscripts a and b will represent two cases with different ratios of compression. We have then

$$E_a = W_a / Q_a; E_b = W_b / Q_b.$$

But $Q_a = Q_b$, by hypothesis. Hence

$$W_a / W_b = E_a / E_b,$$

which is the condition, I take it, that was intended to be

shown on pages 844 and 845 of *Automotive Industries*.

ROBERTSON MATTHEWS.

Mr. Matthews' contention that in making a comparison of the efficiencies at different compressions we should assume the cylinder to be supplied with the same volume of charge of the same quality or richness and under the same initial pressure, is well founded. This assumption was actually made in drawing Fig. 1 on page 844. The amount of combustible gas which enters the cylinder is proportional to the displacement, and as the displacements are represented to be the same for both compression ratios, evidently the condition laid down by Mr. Matthews is fulfilled. Of course, the "initial volumes" are different, but this is due to the fact that with the lower compression ratio more of the spent gases from the previous explosion remain in the cylinder. Usually in thermo-dynamic calculations the total initial volume is considered filled with fresh charge, but this does not represent actual conditions.

When preparing the diagrams Fig. 1, it was first attempted to use the same zero volume line for both, but with a smaller compression volume in one case and the same displacement in both cases the maximum volume would be different in the two cases and the two work areas would be displaced laterally as well as vertically, one with relation to the other, which would make it more difficult to compare them. Since the displacements are equal, the volumes of combustible charge taken in per cycle are equal and the efficiencies therefore are in direct proportion to the card areas, as expressed by Mr. Matthews' equation.

There are probably a number of reasons for the difference in the results obtained from the two equations used in the article. The first of these equations is the so-called air-cycle efficiency equation, and gives the efficiency of heat conversion into mechanical work under adiabatic conditions, that is, when there is no loss of heat through the walls. That heat loss through the walls is an important factor is shown by the fact that the actual thermal efficiency of an engine is only about half as great as the air-cycle efficiency. If the actual thermal efficiency varies with the compression in substantially the same proportion as the air-cycle efficiency, this would seem to be a mere coincidence.

The second equation given takes some account of the heat losses through the cylinder walls, in that an expansion curve exponent of 1.3 is used, instead of 1.405, which corresponds to adiabatic expansion. Then, this second equation also involves a factor $(\alpha-1)$, where α is the pressure multiplication ratio on explosion. This ratio also would be expected to vary somewhat with the compression ratio, because of the change in the dilution by burnt gases with a change in the compression.

In general it may be said that the second equation represents a closer approach to actual conditions in an engine in normal operation than does the air-cycle efficiency equation, and that the two should give different results is therefore to be expected. —P. M. H.

Tractors in Farm Service

Editor, AUTOMOTIVE INDUSTRIES:

I note in your write-up on page 966 of your issue of Dec. 9, under the heading "Tractor Industry Stabilized by Industrial Market," that you say in the second paragraph on the last line that only 12 per cent of the tractors are used on farms.

This should have been qualified by using the entire subject matter. The meaning I meant to convey was

that applying to crawler construction, most of the sales were effected with contractors, loggers, and manufacturing plants, rather than to farmers, "12 per cent of the crawler sales being for farm use."

Last year 94 per cent of our round wheel tractor production went into farm use, and of the Ford production 76 per cent was used on the farms, only 24 per cent being sold for industrial purposes.

W. M. PARRISH,
International Harvester Company of America.

Anent Free Factory Publicity

Editor, AUTOMOTIVE INDUSTRIES:

I note, with pleasure, the article in your issue of Dec. 9 in reference to the stand of the Ottawa newspapers against free automobile factory publicity. The position taken by the Ottawa papers jointly is the position *The State* of Columbia, S. C., has maintained for many years past, and has had to maintain almost single-handed. We find that very few newspapers agree with us, at least in practice, that the news columns of a newspaper should be free from any taint of advertising or propaganda, and that all publicity regarding the sale of commodities should be carried in the advertising columns and paid for.

The State has maintained its position notwithstanding the pressure brought to bear from many sources, and the fact that it is very hard to convince an advertiser you are right when your position is such a contrast to the position taken by 90 per cent of the newspapers. We have been able to carry out such a policy only because we were convinced it was the proper and morally correct thing. And by being consistent and not giving free publicity to one and granting it to another, we feel that we have at least earned the respect of the advertisers.

Mr. Erskine, president of the Studebaker Corp., was

right when he said in a circular letter to newspapers that there is no more reason why a newspaper should publish a picture of an automobile in its news columns than a picture of a sewing machine or any other manufactured article. He takes the position that automobile publicity is an evil and that the newspapers should not carry it.

The newspapers of the country have this matter in their own hands. The publishers must realize the reader is entitled to feel that when an article is in the news columns of a paper it is really news, and is not publicity or propaganda for some advertiser. If they will act on this principle they will raise the character of their publications as newspapers and will earn the respect of the advertisers and will very likely increase their paid advertising.

F. C. WITHERS, *General Manager,*
The State
Columbia, S. C.

Front Axle Sections—Correction

Editor, AUTOMOTIVE INDUSTRIES:

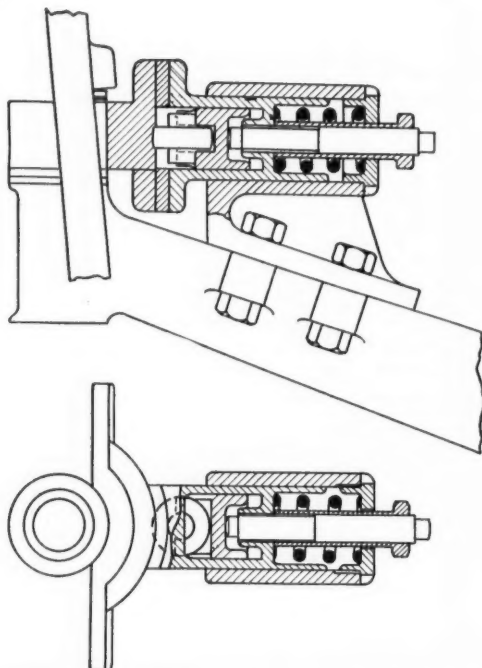
In your issue of Dec. 30, 1926, appeared an article, "Some Additional Light on Torsional Strength of Front Axle Sections," by the writer. I wish to point out that, due to a somewhat unclear statement in my original letter, a mistake has crept in. On page 1087 there is a formula

$$M_w = 1/3 (t_s^2 \times h_s - O_1 63 \times t_s^2) \times S.$$

The moment we get from this formula has to be added to the moment we get from the one above in order to arrive at the moment for the whole section. At the bottom of page 1086, second column, there is a long formula in which there is a t below the line; this t should have an index t_f .

HUGO MOREN.

New French Remedy for Shimmy

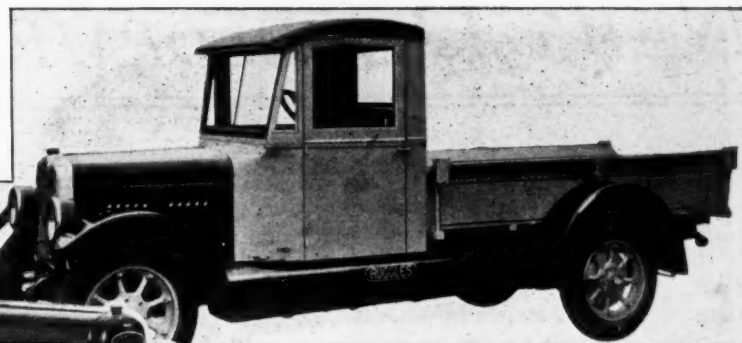


Farman-Perrot steering gear brake designed to eliminate shimmy

A STEERING gear brake which has proved an effective remedy for wheel shimmy has recently been produced in France by the Farman Co. and will be put on the market by the Perrot brake interests. The device consists of a spring-loaded plunger carried in a metal casing attached to the axle near the steering knuckle, having a concave head lined with friction material and coming in contact with a convex plate attached to the steering knuckle. This acts as a brake on the movement of the knuckle around its pivot.

As wheel wobble occurs only when running straight ahead, and as it is disadvantageous to add any stiffening device to the steering when making a turn, the Farman steering brake is designed to be put out of action when the road wheels leave the straight ahead position. The plunger has a roller set in the forked end, and this roller stands out slightly beyond the face of the friction material. The fixed plate on the steering knuckle has a flat formed on it at the point corresponding to the straight-ahead position of the road wheels, the roller dropping into this flat and allowing the brake shoe to come into contact with the plate. When the steering gear is swung over a few degrees, the roller rides out of the flat onto the curved surface of the plate, thus compressing the spring and releasing the brake.

Below—New Model 25 six-cylinder Ruggles truck with 3½ by 5 in. Lycoming engine. Capacity, 2 tons



Above—Model 18 Ruggles truck. Capacity, 1¼ tons. Chassis is so designed that either four or six-cylinder powerplant may be used

Two New Six-Cylinder Truck Models Announced by Ruggles

Designed to fill demand for higher speed, greater flexibility and lower loading height. Capacities 1¼ and 2 tons.

TWO new six-cylinder chassis have been announced by the Ruggles Motor Truck Co., Saginaw, Mich. These jobs are designated as Models 18 and 25, the former having a capacity of 1¼ tons and the latter 2 tons. They have been designed to fill the demand for higher speed, greater flexibility and lower loading height for commercial hauling.

Model 18 incorporates low frame height made possible by using underslung rear springs together with a cut-out frame construction over the rear axle, which eliminates any frame kick-up but retains its advantages of low frame height.

The chassis is so designed that an interchangeable four or six-cylinder powerplant can be used. The four-cylinder engine is a Lycoming "CT" with five-bearing crankshaft, forced feed lubrication, 3¼ in. bore by 5 in. stroke. The six-cylinder engine is Lycoming "S" with four-bearing crankshaft, forced feed lubrication, centrifugal water pump cooling, 3¼ in. bore by 5 in. stroke. The radiator shell is of polished cast aluminum with Perfex core. Transmission is Brown-Lipe selective sliding, three speeds forward and one reverse, in unit with engine.

A bevel gear rear axle is used with a one-piece pressed-steel housing, electrically welded, using taper roller bearings throughout with two bearings in each wheel and a conventional four-pinion differential. Steel spoke wheels mounted with 30 x 5 pneumatic cord tires are standard equipment. All four springs come equipped with Hexdee spring controllers. The chassis weight is 3000 lb. with an 800 lb. body allowance and chassis is furnished in two wheelbase lengths, standard 134 in., long 154 in.

Four standard bodies are furnished for the Model 18, including platform body with two-section stake rack and signboard, express body and flare sides and stake pockets, express body with three-post full canopy and curtains, and de luxe inclosed panel of plymetal construction with dome lights.

3½ by 5 in. Engine in Model 25

The Model 25 is powered with a Lycoming six-cylinder engine, four-bearing crankshaft, forced feed lubrication, centrifugal water pump cooling, 3½ in. bore by 5 in. stroke. A pressed steel radiator shell with a Perfex core mounted on springs is used. Transmission is Brown-Lipe selective sliding, four speeds forward and one reverse, in unit with engine.

The rear axle is a heavy-duty Wisconsin, full-floating, double-reduction, bus type, all gears inclosed and running in oil. Steel spoke wheels with 32 x 6 front and 34 x 7 heavy-duty pneumatic cord tires are standard equipment. The chassis weight is 4200 lb. The chassis is built in three wheelbase lengths, standard 160 in., long 177 in., extra long 189 in.

Warner Gear Co. Transmission

IN describing the new Paige "Straightaway Eight" on page 17 of the Jan. 8 issue of *Automotive Industries*, one of the features mentioned was a "special Warner Gear Corp. four-speed transmission." This transmission is the product of the Warner Gear Co., and the error was due to the fact that the name was confused with that of the Warner Corp.

NEW DEVELOPMENTS—Automotive

Spiral Bevel Cutter Sharpener

Spiral bevel gear cutters are sharpened on an automatic wet cutter grinder recently placed on the market by the Gleason Works, Rochester, N. Y. Power for driving the grinding wheel and table, index and water pump is supplied by three separate motors.

Grinding is done by the conical side of a 14-in. wheel, which is carried on a ball bearing-mounted spindle.



Gleason automatic spiral bevel gear cutter sharpener

Spiral bevel gears transmit the power to the wheel spindle from a vertical shaft having a belt drive from a 3 hp. motor mounted in the base of the machine. A $\frac{1}{4}$ hp. built-in type motor is used for operating the index, and another $\frac{1}{4}$ hp. built-in type motor drives a pump having a capacity of 12 gal. per min.

On this machine, the cutters are rough-sharpened by taking 12 grinding cuts in quick succession on each blade. Fifteen seconds' time is required for this, before the index operates to place the next blade in position. During the indexing, the table is automatically moved back 0.012 in., so that each succeeding blade is presented to the wheel from the same starting position. The index is of the stop-wheel type and turns the work the correct amount necessary for cutters having both inside and outside blades, or for cutters having either all inside or outside blades. After rough-sharpening, a clutch is shifted to engage a different part of the feed cam so that instead of 12 cuts being taken across each blade, the cutter passes across and back once, then indexes and feeds in approximately 0.001 in.

It is claimed that cutters sharpened with this machine will turn out more gears per grind, since with

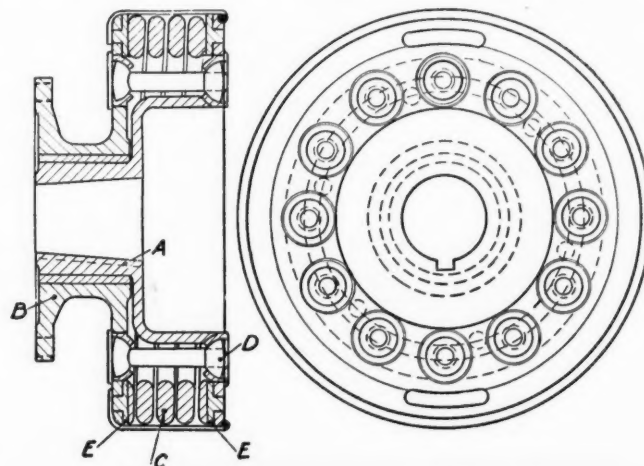
wet grinding, and owing to the line contact obtained when grinding on the conical side of the wheel, there is less danger of burning the blades. Another advantage is that there is less waste in grinding away of cutting tools. One man can operate two machines.

The cutter holder is adapted for three sizes of cutters (6, 9 and 12 in.). This holder has a cradle base for tilting to different angles, as required for sharpening cutters of different blade angles. The tangent of the angle for setting is equal to sine 20 deg. x tangent of blade angle. By means of graduated dials, the table is offset so that together with the tilting of the cutter, the exact location is obtained for accurate sharpening. This machine will be known as a 12 in. automatic spiral bevel cutter sharpener.

S. B. Shockless Drive

A FLEXIBLE member for insertion in the propeller shaft to absorb shocks caused by sudden engagement of the clutch, etc., is being manufactured by the South Bend Engineering & Sales Corp., South Bend, Ind. As shown by the sectional view herewith, it comprises two flanged members, the flanges being connected by a series of 12 bolts with half-round heads, and spread or held apart by a heavy coiled spring. Referring to the sectional view, A and B are the flanges, A being secured to the shaft of the rear axle pinion and B to the universal joint. C is the coiled spring which is compressed to a pressure of 500 lb. The bolts D with half-round heads move in an arc when the driven flange moves angularly with respect to the driving flange. As the bolts move in an arc the spring is slightly compressed, and this, together with the friction of the bolt heads in their sockets, gives the required increase in resistance to torque. A flat ring E is welded to each end of the coiled spring, and is provided with keys which engage into keyslots in the flanges.

According to the manufacturer, a much greater degree of flexibility is afforded by this drive than by rubber cushions or the usual non-metallic type of universal joint, the angular yield of which has a maximum value of the order of 1 deg. With this drive there is a yield of about 5 deg. when the car is being accelerated on



Sectional view of S. B. shockless drive

Parts, Accessories and Production Tools

low gear; 3.5 deg. when the car is being accelerated on second gear, and 1 deg. when the car is being driven on high gear, the torques transmitted in the three cases being approximately 1800, 1100 and 800 lb.-in. It requires 5000 lb.-in. to close up the "drive," hence there is a large reserve for shock absorbing purposes.

The drive was evidently designed to be fitted to cars already in service, and can be inserted between the rear axle drive pinion shaft and the rear universal without reducing the length of the propeller shaft, the cushion being located over the boss containing the pinion shaft bearings. It could, of course, be incorporated also in new designs.

Warner & Swasey Cutter Turners

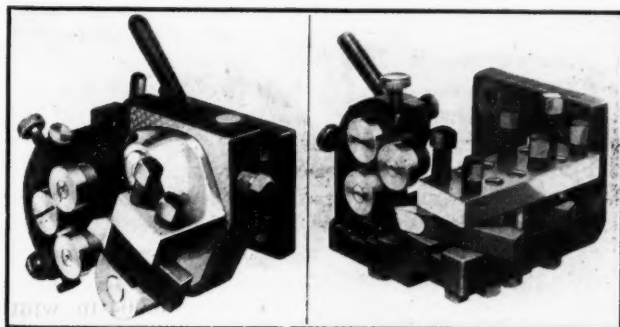
TWO entirely new tools designed by the Warner & Swasey Co., Cleveland, Ohio, to permit of increasing cutting speeds and depth of cut and still maintain a good finish, are illustrated herewith.

In the single cutter turner the cutter is carried in a block which swings about a hardened and ground stud, the cutter itself being held in an open slot by two screws. This permits turning very close to shoulders, collects or fixtures, and it may also be set to precede or follow the rolls of the roller back rest. This cutter block is easily adjusted and the adjusting screw may be securely locked by a binder screw.

Two rolls are provided on a roller back rest, and the reduction of friction as compared with a solid back rest is said to make higher speeds possible and to give a better finish. The rolls and studs are made of hardened steel and mounted on swing jaws. The rolls are adjusted to the work by screws and are clamped in position by a binder handle.

The multiple cutter turner, designed for use on bar stock and forgings, consists of three parts—the body, the top plate and the roll-carrier. The cutters are plain bits which can be quickly set in various combinations. They are clamped between the tool body and the top plate by the screws bearing on their tops, which method of clamping permits of turning close to shoulders, etc., and it also reduces overhang.

The rolls on the back rest are adjustable for various diameters, and the back rest holder itself is adjustable longitudinally. One back rest holder with rolls is furnished with the turner, but two may be used if necessary. Owing to the possibility of using two back rests in different positions and to the heavy construction of



Warner & Swasey single and multiple cutter turners

the tool itself, it is possible to obtain accurate work with multiple cuts.

For quantity work, single purpose cutter blocks for holding the cutters may be substituted for the standard blocks. These blocks are located by a tongue which fits into the groove in the tool body. The cutter slots and set screw holes are located to suit the requirements of the particular job in hand.

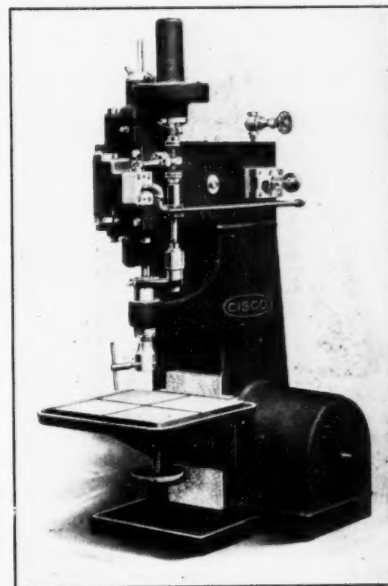
Cisco Automatic Tapping Machine

ACCURACY and high operative speed are combined in the new Cisco automatic tapping machine through the use of ball bearings, a lead screw and nut arrangement of great accuracy and pneumatic control of tapping and reversing clutches. Made in bench type by the Cincinnati Iron & Steel Co., the new machine is intended for tapping jobs in the smaller sizes. Maximum automatic spindle travel is 1½ in. while the minimum is ½ in. The maximum distance between the adjustable knee type table and the Skinner No. 50 positive drive chuck is 6 in. while the distance from the center of the spindle to the face of the column is the same figure.

Readily interchangeable lead screw and nut attachments which conform to the lead of the desired tap control the spindle feed, while rotation in either direction is controlled by opposed chucks which are operated by an air cylinder using 25 lb. pressure. Air valve control is obtained by a throttle mechanism which is actuated by a rod and yoke from the ball bearing quill surrounding the lower end of the chuck spindle. Drive is taken through a 1 in. belt from a ½ hp. motor running at 1800 r.p.m. and inclosed in the base of the machine. Spindle speeds can be set to 1000, 2000 and 3000 r.p.m. and the rate of vertical travel is the resultant of one of these speeds and the pitch of the tap. The spindle is ½ in. diameter alloy steel.

Due to the accuracy of the lead screws and the sensitive control of the opposed clutches, the depth of the tapping operation can be controlled to limits of .001 in. In a recent demonstration full ¼ in. threads were produced in a blind hole with a bottom tap with a spindle speed of 3000 r.p.m.

In order to prevent tap breakage, the machine is equipped with a safety device which backs up the tap in case it is not registered with the drilled hole or



New automatic tapping machine of Cincinnati Iron & Steel Co.

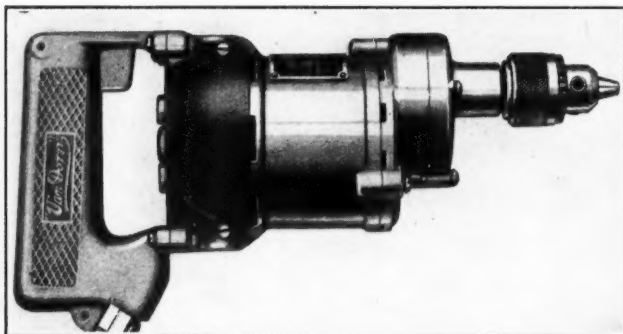
encounters some unusual obstruction. The design is arranged so that wear on the clutches is compensated inherently and the coordination of the various elements is maintained. Ball bearings are used throughout the entire design. For parts of unusual nature or larger size, the knee type table can be removed. While only a single spindle bench machine of 415 lb. weight is built, the design is sufficiently compact to permit the grouping of two or more machines in a row or semi-circle of limited dimensions.

Cleveland Sand Conditioner

THE Model H Cleveland sand conditioner is a recent product of the Production Equipment Co., Cleveland, Ohio. It consists of a metal hopper attached to a housing containing a motor-driven cutting cylinder. The sand is shoveled into the hopper which directs it against the rapidly revolving cylinder. The cylinder action breaks up the sand and blends and aerates it. The cutting cylinder is driven through a silent chain drive. Both the chain and the electric motor are totally inclosed. An inclined screen or a power-driven riddle are supplied when it is desired to riddle the sand before re-use.

Van Dorn Has New Drill

THE Van Dorn Electric Tool Co., Cleveland, Ohio, has recently developed a $\frac{1}{4}$ in. electric drill which is lighter and more powerful than previous models. The new tool is equipped with an automatic switch which shuts off current when the finger is removed from the trigger. A new method of attaching the cable



New Van Dorn $\frac{1}{4}$ in. drill

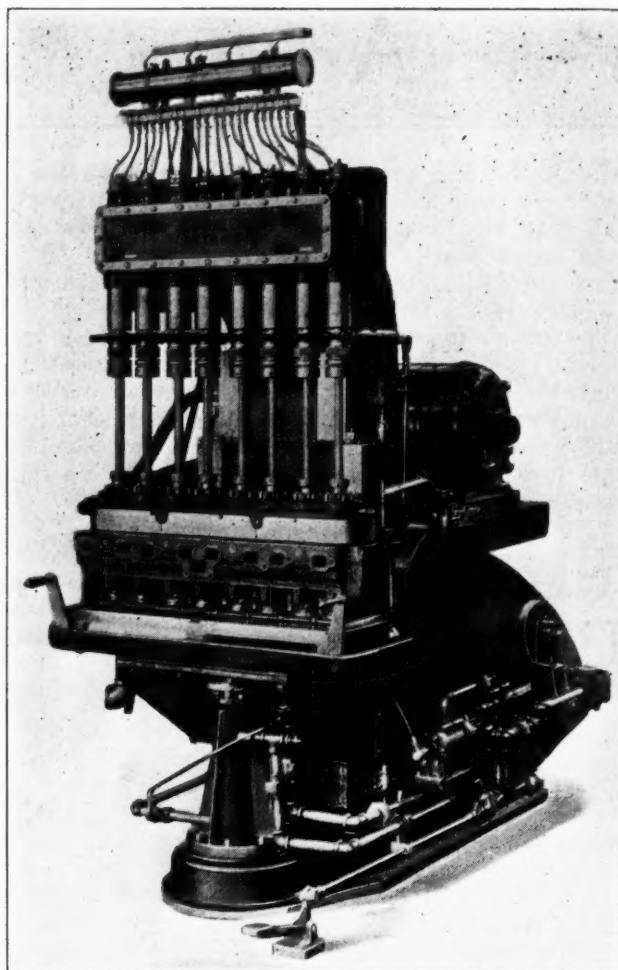
to the drill permits speedy take-up or renewal of the former.

The motor is of the universal type, running on D.C. or A.C. at 2000 r.p.m. no load, and 1200 r.p.m. full load. Drilling capacity is $\frac{1}{4}$ in. in steel; weight is 5 $\frac{1}{3}$ lb.; overall length 11 $\frac{1}{4}$ in. Equipment includes automatic safety switch, three-jaw chuck and 10 ft. of cable with plug.

Two New Hutto Grinders

WITH the addition of a portable unit and radial drill-press type of grinder to the production machine which already is in use in many plants, the Hutto Engineering Co. of Detroit, now is in position to provide equipment for every class of cylinder grinding. Worn blocks can be reground while mounted in the chassis or when stripped and dismantled.

All three of these machines use the characteristic Hutto grinder head, which incorporates an opposed



Hutto production cylinder grinder

conical adjustment insuring positive sizing. Six long abrasive stones are mounted in individual steel frames which are mounted in a substantial hardened steel head. These stones are controlled by a micrometric dial. Grinding begins with the stones set to an under-size dimension and the diameter is increased to the desired size at a set stop by means of a hand brake control. The grinder head is driven and floated by intermediate connection which allows the grinding axis to follow that already established by the cylinder.

The cut shows the production grinder as supplied for the Packard eight engine. An electric motor drives the grinder heads and reciprocation is effected by a hydraulic mechanism which raises and lowers the table. This machine is built to order for any number and spacing of cylinders.

Tillotson Filtrap Improvements

A NUMBER of improvements have been made in the design of the fuel filter made by the Tillotson Carburetor Co., Toledo, Ohio, and sold under the name of Filtrap. The central stud formerly used for supporting the glass bowl has been eliminated and its function is now performed by a chin strap. The Filtrap is made in two types, one for use with gravity feed systems and the other for application to the top of vacuum tanks. A shut-off cock is incorporated in the gravity type. In these filters the fuel is passed through monel wire cloth with spaces of 0.003 to 0.004 in. width. Monel metal wire is used because it is not attacked by any sulphuric acid that may be present in the fuel.

Nearly 10,000 Miles of Airways Now in Operation in U. S.

Development has been rapid since passage of Air Commerce Act. Fifteen routes operated by private enterprise on Post Office contracts. Express and passengers also carried by seven lines.

SINCE the passage of the 1926 Air Commerce Act, in May of last year, there has been a remarkably rapid development of air routes in the United States. At the end of the year there were in operation, or contracted for, 9475 miles of airways. Besides the transcontinental route and the New York-Chicago night mail, which are operated by the Government, there are 15 routes in active operation by private enterprise under contracts with the Post Office Department.

Privately operated routes already in operation cover nearly 6000 miles of airways and, with two or three more routes already contracted for, make up nearly 65 per cent of the total mail carrying air routes covering the country. Seven of the private routes, aggregating mileage of about 3600, carry express and passengers as well as mail, while the remainder, so far, carry mail only.

Future Development Planned

A bulletin recently issued by Assistant Secretary of Commerce MacCracken, reviews the aviation developments during the past year and the very encouraging report of what already has been done appears still brighter in view of the plans which are under way for the future.

One of the prime requisites for development of commercial aviation is night flying and this, in turn, necessitates adequate lighting of airways. Of the 9475 miles of airway now in operation, 2041 miles of the transcontinental route are lighted and plans call for completion of lighting of about 1666 more miles divided among seven routes. Lighting equipment will consist of 24-in. revolving search-lights placed on 50-ft. towers and spaced at 10-mile intervals along those portions of the routes where flying in early morning or late evening is necessary under present schedules.

At intervals of about 30 miles along the routes intermediate fields to be used as emergency landing fields are being leased with the provision that only such crops will be grown in them as will not hinder the landing or taking off of airplanes.

During the next fiscal year it is planned to install directive radio beacons and smaller radio marker beacons along the various airways so that pilots will be able to keep to their course night or day without regard to weather conditions. At about 100-mile intervals radio telephone transmitting sets are to be established for communication with pilots. These will be employed to give the aviator information regarding changes in weather conditions ahead which may have occurred since he left his last port, and similar important information.

The third major project which is being carried out

by the Department is providing adequate weather service for aviators. The Air Commerce Act provides for the establishment of 22 "upper air" stations along the airways with trained personnel at the fields where practicable. The present and proposed airways are being served by a net of 50 regular Weather Bureau offices and 27 Weather Bureau and one Signal Corps upper air stations distributed along the airways. Weather information is furnished to pilots by telephone and telegraph regarding current conditions in the immediate locality of the station, and forecasts down through the ensuing four or five hours covering the sections of the country to be flown over are also frequently furnished.

It is expected to have all the Weather Bureau offices and stations connected by telegraph, telephone or radio with the airports and intermediate fields in such a manner that pilots may be able to obtain accurate and relevant information at any time and from any place concerning the present and immediate future conditions of the country over which they expect to fly.

Although the Government is not permitted to own or maintain a commercial airport, it is greatly interested in how such a port is conducted so that, in order to facilitate the rapid establishment of suitable airports throughout the country which will, in turn, have a beneficial effect upon air route development, the Department of Commerce has gathered considerable general information on the construction and equipment of such a port which is available to interested persons or organizations.

Chiefly Interested in Mail Service

In the actual development of airways, the Government is first interested in the advancing of the mails. It has been indicated by past experience, however, that a mail contract alone is insufficient to support such service. With night flying made possible and the extension of existing routes so that express and passenger traffic may be developed along with the mail carrying, the whole advantage of the airplane will be available and it is to be expected that full pay loads will be forthcoming from an appreciative public.

The Department of Commerce, according to this report, has a prime interest in new airways but it cannot be expected to designate an airway or provide air navigation aids until there is sufficient demand for such transportation to warrant it. The great cost of providing adequate facilities for an airway makes it necessary to be very sure of the permanency of the proposed route before anything can be done and this requires careful study of all the conditions.

U. S. Exports of Cars, Trucks, Tires and Parts

COUNTRIES	GASOLINE PASSENGER CARS										TRUCKS					
	Up to \$500		\$500 to \$800		\$800 to \$1200		\$1200 to \$2000		Over \$2000		Up to 1 ton		1 to 2½ Tons		Over 2½ Tons	
	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value
Austria			2	\$1,147			2	\$3,100								
Asses and Madeira Islands											6	\$2,809				
Belgium	10	\$4,450	120	82,584	206	\$237,311	76	119,893	44	\$113,807	6	5,293	4	\$5,950		
Bulgaria			1	832	2	2,132	1	1,339								
Czechoslovakia			1	868	4	4,500	2	3,810	3	7,500						
Denmark	98	34,199	92	66,591	82	85,871	16	26,597	4	9,260	240	111,576	13	12,439		
Finland	1	500	33	24,053	35	34,110	6	9,891								
France			4	3,111	25	25,951	6	9,833	2	5,382	24	11,076				
Germany	102	45,037	48	31,210	135	149,513	77	108,366	31	88,046	54	25,424	6	6,104		
Gibraltar				765	1	927										
Greece	2	1,102	27	20,173	1	939	3	4,760	2	5,000						
Hungary			9	6,722	5	4,912			1	2,812	2	2,060	1	1,363		
Iceland and Faroe Islands			1	650												
Italy	254	77,965			2	2,227	2	2,786			350	91,945				
Lithuania																
Malta, Gozo and Cyprus Is.			2	1,138	2	2,046					2	1,062				
Netherlands	14	9,826	49	52,763	16	25,647	6	17,784	2	1,594	4	3,472	2	\$5,010		
Norway	19	14,053	6	6,351	1	10,942	1	2,300	5	3,830	12	16,112	1	1,941		
Poland and Danzig	4	2,202	14	3,362	5	5,119	1	1,571	2	5,000						
Portugal	26	14,430	11	8,028	5	5,542	6	10,293	3	7,500	18	7,156	2	1,324		
Rumania			11	8,634	4	4,614	1	1,401								
Russia																
Spain	81	35,856	127	96,244	190	197,692	61	97,206	29	70,194	217	99,558	21	20,923		
Sweden			53	40,220	87	93,417	37	56,222	7	18,277			17	19,551		
Switzerland			13	10,648	6	6,118	2	3,020	5	15,500					2	7,000
Turkey											6	2,769				
United Kingdom	336	147,588	306	185,062	27	30,022	36	58,747	42	104,755	17	8,142	69	67,817	2	2,840
Irish Free State																
Yugoslavia			7	4,736	4	4,113										
United States																
British Honduras	1	355														
Canada	211	58,603	467	301,635	219	211,486	76	123,852	75	226,447	48	39,801	108	119,950	14	39,570
Costa Rica			8	5,859	7	6,674	1	1,863	2	4,500			4	5,977		
Guatemala	5	1,928	1	600			9	13,900	1	2,500	1	1,351	9	13,068	3	11,601
Honduras			1	675			1	1,401			1	297			1	4,200
Nicaragua	1	250			5	6,032										4,895
Panama	9	4,607	12	8,400	13	14,375	3	4,387			12	7,057				
Salvador	1	450	2	1,674	12	13,083	2	4,000	7	17,452	2	2,075	5	6,308		
Mexico	306	114,573	148	101,704	102	102,713	36	51,505	11	34,055	132	65,864	17	18,417	4	17,173
Newfoundland	3	922					1	1,475								10,506
Barbados					2	1,971										
Jamaica	14	4,482	17	10,993	6	5,697	1	2,018	1	2,556	22	14,203	1	2,313		
Trinidad and Tobago			6	4,537	7	6,673	2	2,959			2	1,598				
Other British West Indies	15	3,680	1	857	2	2,094	1	1,696			3	876			2	9,912
Cuba	129	45,175	29	20,857	53	53,738	14	22,235	16	44,291	65	24,007	19	21,510	4	12,207
Dominican Republic	8	3,720	28	18,857	6	6,160					1	300	3	3,224	4	4,728
Dutch West Indies	1	354	3	2,086	12	12,929					9	3,227			1	4,665
French West Indies																
Haiti	2	1,090	4	2,770	9	9,780	3	4,990			2	1,460	3	3,477		
Virgin Islands	3	745									1	455				
Argentina	1,608	757,478	353	242,708	439	471,571	84	122,188	52	140,565	163	74,416	43	74,240	42	127,124
Bolivia					9	10,663	2	3,470					1	1,769	4	7,488
Brazil	1,182	455,809	276	196,520	148	151,002	40	63,805	40	106,697	1,441	550,739	8	7,595	2	7,420
Chile	6	3,137	80	52,983	45	44,393	5	7,860	4	10,000	7	7,367	17	23,738	14	42,689
Colombia	59	26,161	48	34,203	51	55,018	26	39,768	16	43,269	69	46,414	41	57,189	6	19,096
Ecuador			2	1,374	3	3,000										
British Guiana																
French Guiana																
Dutch Guiana																
Paraguay											20	6,772				
Peru	46	16,272	8	5,989	7	8,274	1	1,788	3	7,500	49	16,439	21	29,441	2	2,876
Uruguay	642	194,867	90	68,995	81	85,565	5	8,217	6	19,225	267	65,559	31	42,121	5	12,898
Venezuela	34	12,564	34	24,981	131	135,192	19	28,727	6	17,677	36	23,251	46	76,993	8	21,699
Aden			9	5,221												
British India			167	127,949	71	75,395	8	12,021			90	59,917	36	39,601		
Ceylon			29	22,939	43	44,315	6	8,933			13	8,679	2	3,590	1	1,248
Straits Settlements	104	56,042	29	18,346	36	37,311							8	9,218		
China	79	30,148	50	36,704	13	12,809	9	14,023	5	15,000	146	64,929	15	19,752	9	7,766
Java and Madura			34	22,496	27	27,816	11	16,774	2	5,216	4	3,318	6	6,435		
Other Dutch East Indies	4	2,220	28	19,294	8	7,863	1	1,529	1	3,193			2	1,617		
Hongkong	7	2,454	2	1,299							5	1,946				
Japan	6	1,794	8	5,831	2	1,794										
Kwantung	41	15,282	53	39,397	58	68,037	23	37,652	12	30,548	32	16,920	6	7,991	6	47,130
Palestine and Syria	28	11,535			3	2,846			1	2,500						
Persia			21	14,981	20	20,234	2	3,063			18	14,829	12	11,952		
Philippine Islands	139	58,803	163	120,855	74	76,399	27	38,927	17	43,508	110	44,458	42	45,564		
Siam			8	5,591	2	2,206										
Turkey	5	2,579														
Other Asia			4	3,037												
Australia	2,986	1,248,959	1,060	773,682	1,003	1,095,592	69	110,131	50	128,010	1,661	733,829	293	260,227	58	164,195
New Zealand	507	208,488	200	143,037	207	223,331	17	24,764	2	5,022	253	116,612	40	41,704	5	14,588
British Oceania											1	657				
French Oceania																
Other Oceania																
Belgian Congo	3	900														
British West Africa	2	354	7	5,544							14	11,712	188	195,700		
British South Africa	569	234,416	313	223,935	709	725,676	29	42,953	2	4,499	22	15,971	65	75,468	1	2,961
British East Africa	8	4,358	17	11,933	36	39,100	2	2,823			48	24,718	11	13,002		
Canary Islands			1	723									1	1,769		
Egypt	55	25,545	8	6,896	19	20,905			1	3,361	13	5,911				
Algeria & Tunis																
Liberia																
Madagascar	4	1,419									3	2,920				
Morocco	12	3,480	1	765	1	993					88	28,826	4	4,074		
Portuguese East Africa	4	2,152	1	860	14	14,780										
Other Portuguese Africa	25	9,646			2	1,861					10	3,964	2	2,484	8	26,677
Spanish Africa																
Total	9,788	\$3,991,125	4,739	\$3,342,623	4,617	\$4,890,455	901	\$1,393,908	517	\$1,405,243	5,836	\$2,488,198	1,259	\$1,402,533	216	\$642,103

for November, 1926

Canadian Exports

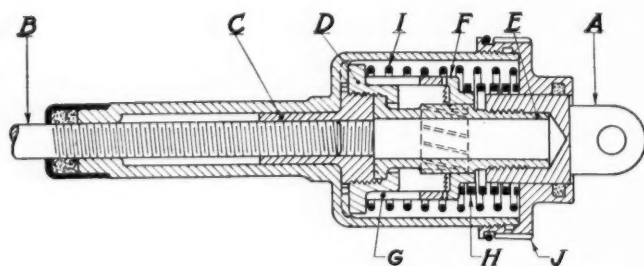
ELECTRIC VEHICLES		PARTS	TIRES						PASSENGER CARS						TRUCKS		PARTS	COUNTRIES
No.	Value		Casings		Inners		Solids		Up to \$500		\$500 to \$1000		Over \$1000		No.	Value		
No.	Value	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value	Value	
		\$2,403																
		949	106	\$1,251	104	\$227												
		219,818	254	4,944	59	156					2	\$1,629					\$13	
		314																
		6,404	1,517	33,479	186	603	113	\$4,791										
		70,172	5,847	64,782	2,799	3,894			2	\$760	23	12,726	6	\$6,981			2,106	
		20,952	250	5,116	485	1,110												
		48,619	106	2,383	30	100					5	3,516						
		166,722	11,705	149,865	5,945	15,198	8	243			2	1,456	22	31,604			9	
		557											2	2,361				
		4,566	1,910	25,302	230	662	46	1,273										
		2,176	133	1,950	365	925											43	
		93	25	840	25	85												
		23,540	178	3,906	204	620			1	423								
		1,009																
			83	836	75	122												
		1,730	16	310	26	76			10	3,432	4	3,202			6	2,365		
		38,622	2,197	29,733	4,473	9,141											256	
		12,123	641	15,729	460	1,315	15	1,175	1	424								
		346	427	5,011	120	247					1	944	1	1,486				
		15,169	1,286	16,838	980	2,115	10	186										
		15,078	140	2,505	139	1,014			77	33,580	9	5,187			20	7,864	21	
		937	24	469	30	99												
		183,545	3,690	58,156	5,534	9,351	484	19,851			2	1,936					26	
		53,261	3,474	55,983	1,593	3,253			4	1,960	5	2,745						
		7,189	684	8,509	397	990	36	3,292										
		3,768	248	2,610	100	353												
		373,219	13,138	177,723	6,439	15,968	2,402	59,603	414	130,026	204	204,604	133	158,539			21	
		3,634															49,618	
		1,093							11	4,591			1	1,486			2,854	
									29	6,121	1	600	1	1,400	1	500	42,546	
1	\$300	1,456,935	294	6,941	328	915	30	1,048										
		3,473	89	2,003	54	141			2	825	1	532	1	1,101	4	1,573		
		12,158	293	8,555	259	996	4	360	2	811			1	1,089	4	1,573		
		2,394	55	1,213	14	51	36	1,981	2	986								
		2,286	91	1,451	118	328					1	944	1	1,180				
		13,547	630	10,124	298	726	36	1,139									40	
1	1,000	6,007	136	2,610	124	398	13	1,400										
		250,257	6,435	80,518	5,409	11,330	108	3,234			2	1,780	14	17,750			2,359	
		1,309	9	152	8	30			5	1,608	4	2,344	1	2,070	2	585	36	
		4,720	60	737	59	98			15	6,086	4	2,022	4	4,413			26	
		22,130	66	915	38	105			18	6,328	27	18,830	1	1,025	12	4,096	78	
		5,158	64	1,515	16	70											14	
		12,492	63	613	130	278	22	741	1	397	3	1,667	2	2,292	6	1,950	495	
		69,726	6,648	65,368	6,732	10,898	702	18,781			2	1,869	1	1,163			270	
		22,663	1,197	15,574	796	1,662	38	919			7	6,002	2	2,311			56	
		5,331	296	4,101	322	693	4	107	6	2,384								
		338	50	493	25	45												
		11,364	424	9,012	555	1,579			3	1,217			2	2,296	4	1,573		
		573																
		1,420,188	28,519	387,343	18,384	43,034	1,237	38,716	672	317,432	54	34,352	30	36,143			174,632	
		5,903	148	3,234	218	653									10	3,932	457	
		394,678	14,209	155,957	6,870	13,924	119	3,194	47	23,026	83	71,992	45	47,022			1,093	
		81,857	1,555	32,004	254	598	66	1,149	11	5,218	7	5,728	8	9,873	12	4,718		
		58,850	1,753	38,790	2,244	7,672	67	2,369	13	5,787	6	5,652	9	10,251	26	10,560	8	
		3,888	148	2,726	202	471	4	125										
		1,440	22	142	2	6			7	2,227	7	5,562	3	3,337	6	2,322	402	
		536																
		571	12	261	36	60			1	414								
		962	160	3,513	180	364	4	147										
		33,365	648	12,964	742	1,649	16	364			3	2,036	2	2,311	4	1,573		
		53,140	3,412	37,286	1,527	2,670	158	8,671	28	13,720	6	4,188	2	2,178			216	
		54,200	2,739	55,047	3,149	8,324	4	231	32	14,032	2	1,370	2	2,311	170	66,834	14	
		306							4	1,972							944	
		105,277	3,643	39,492	3,014	5,184	345	8,713	443	166,342	60	48,752	2	2,985	383	130,553	38,488	
		21,642	1,005	20,458	893	2,436	148	3,969	42	17,772	32	21,841	2	2,198	12	3,402		
		57,392	850	9,063	196	384	147	2,608	410	147,758	12	11,001	6	6,838	34	13,194	15,999	
		45,299	3,120	38,148	1,444	2,520	250	6,833	26	10,824	12	8,754	6	8,345	6	2,350	120	
		54,605	935	12,895	376	951	413	7,688	442	171,454	54	47,261	20	24,753	145	47,860	8,090	
		12,015	484	6,367	196	427												
		1,511							25	10,976					4	1,573		
		14,814																
		207,046	13,098	116,578	14,277	55,996	507	9,389	88	39,799	13	11,970	4	4,242			4,065	
		2,264	36	450	54	110												
		18,672	1,350	20,335	1,364	2,629			7	3,381	1	549						
		1,710	437	7,975	644	2,345												
		69,234	5,215	58,659	6,463	27,251	371	10,130										
		3,194							4	1,627					62	21,540	6,078	
		1,894																
		365,656	622	15,665	164	608	596	29,547	1,602	525,219	11	10,030	1	1,377	550	152,156	54,745	
		141,936	620	8,314	257	429	106	5,614	409	140,173	194	153,941	2	2,182	270	89,048	16,811	
		1,574	83	834	46	97												

Automatic Slack Adjuster Developed for B-K Booster Brake

Compensates for wear of brake lining and eliminates need for frequent inspection of brake linkage. Increases braking force.

WEAR of brake lining necessitates adjustment of the brake linkage, and on some types of vehicle which have to make frequent stops this adjustment is ordinarily required at rather close intervals. To relieve the driver or the maintenance crew of the duty of checking the brake adjustment the Bragg-Kliesrath Corp., Long Island City, N. Y., has developed an automatic slack adjuster which is shown in section in the drawing reproduced herewith. This device was designed specially for use with the B-K booster brake.

Referring to the drawing, the booster brake piston rod is connected to yoke *A* of the adjuster, while the brake rod *B* extends from the opposite end of the adjuster and is threaded to fit the adjusting nut *C*. This nut is threaded into collar *D* which fits about a collar on the outer end of sleeve *E*. The latter is attached to the yoke end member *A*. These parts carry the braking load and are entirely separate from the adjusting mechanism, which simply functions to turn nut *C* in order to draw brake rod *B* further into the device toward the yoked member *A*.



Cross-section of Bragg-Kliesrath automatic brake adjuster

The adjusting mechanism consists of a ratchet disk *F*, which is provided with suitable internal helical keyways that engage with helical keys on sleeve *E*; and the ratchet sleeve *G*, which is provided with teeth meshing with the teeth of the disk and with four slots which engage projections on the outside of collar *D*, so that rotation of sleeve *G* will turn the collar and adjusting nut *C*. In order to maintain the ratchet teeth in engagement, a spring *H* is provided, and in order to return the parts to the position in which they are shown and operate the mechanism, a spring *I* is arranged between the lugs on collar *D* and the barrel cover *J*.

Operation of the device is as follows: With the brakes properly adjusted the whole device moves as a unit, without relative motion between its parts. However, when the travel of the device is permitted to go beyond a pre-determined point, owing to wear on the brake surfaces or improper adjustment, the cover *J* on the end of the casing comes into contact with the previously

mentioned stop attached to the booster brake cylinder, with the result that the casing, the sleeve *G* and the ratchet disk *F* are moved longitudinally toward the brake rod end of the mechanism. This longitudinal movement causes the ratchet disk *F* to rotate, because of the spiral keys, and should the movement be sufficient the disk will be brought to a position where a new set of ratchet teeth between it and the sleeve *G* are engaged, when, upon the releasing of the brakes and the return of the parts to their normal position under the action of spring *I*, the ratchet disk is given a rotation in the opposite direction, due to the spiral keys, and this rotation is transmitted to sleeve *G*, collar *D*, and nut *C*, so that the nut will be screwed onto rod *B* a little further, and a small adjustment take place.

Requires No Attention

The entire device is filled with grease and requires no attention; and since its parts are large and operate slowly, it should be subject to only little wear. It is not necessary to take the device apart either when fitting the same or when readjusting the brakes after applying new lining, as the brake rod *B* is provided with a thread of such length that if it shows outside of the adjuster casing sleeve it is known that the adjustment is released as far as it is desired to go and still have a sufficient length of rod thread within the nut *C*.

Thus, when assembling the device or adjusting the brakes after relining, it is simply necessary to bring the rod to a position where the thread starts to come out of the adjuster sleeve, and then to adjust the brakes for proper clearance, and for correct action, by means of the rear adjustments, without changing the position of the brake rod in the automatic adjuster. The adjuster will thereafter take care of the brake adjustments by drawing in on the brake rod as much as is required, and no further adjustment is necessary until the brakes are relined.

Owing to the fact that the brake pedal can be arranged to operate through a definite angle and because no allowance need be made for extra pedal travel when the brakes are out of adjustment, it is possible, when this automatic adjusting mechanism is used, to increase the pedal leverage and therefore obtain a more powerful brake action.

ACCORDING to a recently published census there are now 189,869 motor vehicles in service in Italy, as compared with 117,124 a year ago, an increase of 62 per cent. The largest number of cars are owned in the provinces of Milan, Turin and Rome, in the order named, whereas the least number are found in the Sicilian provinces of Girgenti and Caltanissetta.

EDITORIAL

Scrapping Used Cars

THE possibility of cars being scrapped by manufacturers and dealers as a means of alleviating the used car problem often has been suggested; now it is being tried in a limited way.

Chevrolet, as recorded in our news columns two weeks ago, is making a flat allowance of \$50 to dealers for every used Chevrolet scrapped in the presence of a factory representative. The money will be paid from a fund created by setting aside a credit of \$5 on each new car taken by each dealer.

Artificial scrapping always has been perfectly feasible, as has been pointed out previously, so long as someone—either the manufacturer, the dealer or the owner—can be found who is willing to pay for the economic loss involved in destroying unused transportation. The Chevrolet plan would seem to be a step in the direction of providing a means of payment for such purpose and the effects and working out of the practice will be interesting to watch as time goes on.

Invisible Light Rays

AND now enter the invisible headlight—or rather the projection of invisible ultra-violet rays from a lamp—rays free from glare yet capable of flooding fences, posts and bridges with light when such objects are treated with a fluorescent substance. Or possibly special invisible ray spotlights may be used in addition to the regular lamps which could concentrate their light on the road only, leaving the detection of distant objects up to these ultra-violet light projectors.

Those familiar with the physical nature of light know that in addition to the narrow band of frequencies visible to the naked eye, there are other much broader bands on both sides of it into which heat and radio waves and others on the one side are used, and ultra-violet, X-, and the gamma rays of radium lie on the other, neither group visible without the aid of special means to make them evident. Ultra-violet rays lie just beyond the visible violet rays and have wave lengths in the region of from 136 to 3800 Angstrom Units (.00000136 cm. to .000038 cm.), or frequencies of from 2.2 trillion to 78.9 billion kilocycles per second, and covering a range of about five octaves.

Dr. Donald C. Stockberger of the Massachusetts Institute of Technology has succeeded in projecting invisible motion pictures and has transmitted sound on these invisible rays, the motion pictures springing into life when turned against a fluorescent screen. He also has demonstrated how these rays could be used for automobile light by the use of a model automobile on a miniature road showing

fences and posts which glowed in the invisible light when coated with a fluorescent substance, and which continued to glow after the rays were removed.

While all this is highly speculative at this time and is still capable of demonstration only by laboratory methods, Dr. Stockberger predicted developments in the practical application of invisible light, not only in the manner outlined above, but also in the reading of obliterated documents, in the detection of fraudulent checks and in utilizing their health-giving properties, in which connection it may be noted that these rays do not pass through ordinary window glass, hence to be available indoors must be artificially produced. Outdoors these same rays decrease the life of rubber, thus necessitating protective coatings to preserve it against their deteriorating effect.

Some day we may have to wear fluorescent clothing to "show ourselves up" when we cross the path of an oncoming automobile, and by way of greeting we may be saying, "How's your old fluorescent hat this evening?" instead of the usual "Have you had your iron today?" Who knows—?

E. B. N.

The Layman as a Judge

EVERY year we are surprised all over again at the almost unerring accuracy with which it seems possible to predict the probable success of a new automobile merely on the basis of the general reaction of casual visitors to the opening days of a New York show. Time and again a new car, seeking public favor, has been exhibited for the first time in New York and had its subsequent success or failure follow almost exactly the course which would be expected if predictions were to have been made on the basis of comments gathered from passing observers at the booth on the two or three opening days.

The opinions of men in the industry—professionals—often turn out to be far less accurate than that of the layman on such occasions, except in so far as the professional forgets his expert knowledge and views the new product as a layman. Later production inefficiencies, perhaps, throw this popular judgment awry more often than any other single factor.

Subsequent sales effort, advertising appeal and general merchandising activity, of course, are determining factors in putting over any new automobile—which makes all the more surprising the great number of times the offhand, casual inexperienced opinion strikes it right. Plenty of psychological rationalizing might be done as regards this point, but the important thing is the existence of the fact.

AUTOMOTIVE **NEWS SECTION** INDUSTRIES

Philadelphia, Pennsylvania

Saturday, January 29, 1927

Factories Increase Outputs and Advance Selling Plans

PHILADELPHIA, Jan. 29—Although the total of cars and trucks this month will be well above December, manufacturers are proceeding conservatively and are content to await developments of a definite character in the sales market, which are not expected until the weather improves and a majority of the local automobile shows have been held. Attendance records have been broken in several cities already, and there is no doubt of the keenness of public interest in the new offerings.

The factories meanwhile are mustering their forces for the active selling season, which, by common agreement, will see probably the most intense period of competition in the history of the industry. New sales and service plans are getting under way and for the first time something definite appears to be in sight for the aid of the dealers in merchandising used cars, which remain the most serious problem for the retail end. Most leading factories are ready to launch plans.

That car prices have continued on a fairly stable basis is proving a helpful factor, as price cuts have been one of the worst adverse influences on the used car market. They tend to depreciate used car values and sometimes lead to increases in repossessions, as cars are only repossessed when the purchaser is unable to sell the vehicle for more than he owes on it.

The industry still looks for mergers in 1927, despite the difficulties that cropped up when preliminary moves toward consolidations were made last year.

Rubber Rise Needed to Check Restriction

NEW YORK, Jan. 26—To prevent a further reduction in exportable allowances from restricted crude rubber producing areas, spot rubber here will have to sell for more than 64 cents a pound for the rest of this month, says F. R. Henderson of Henderson, Helm & Co., president of the Rubber Exchange of New York. Under the Stevenson restriction act, the next reduction automatically will be to the 70 per cent level; the spot price on Saturday here was 38.50.

London stocks next week are expected to be the largest in more than two years. The survey continues:

"The arrival at New York from Jan. 1 to Jan. 19 amounted to 28,200 tons, and it is estimated that the arrivals for the month at all ports of the United States will exceed 40,000 tons. Consumption during the same period, it is estimated, will not exceed 28,000 tons.

GMC Boosts Use of Windsor Plan

DETROIT, Jan. 26—The merits of the Windsor used car plan were laid before members of the Michigan Automotive Trade Association today by Floyd A. Allen, assistant to the president of the General Motors Corp.

"General Motors feels that in sending me here we are advocating the plan and if there is any merit in it at all it will benefit all dealers," said Mr. Allen, who cited the fact that the corporation has given it much study and has taken it up with the sales managers of other automobile manufacturers who have lent their endorsement to it.

"This is not an idea of our own hatching at all. It came to us from Windsor," and declared that while there has been much skepticism about used car plans in the past that prejudices were not allowed to stand in the way in making an analysis of its merits.

The Windsor dealers' experience has proven very satisfactory, he said, and those who were at first skeptical are now loudest in its praises. It has now spread to the principal cities of Canada and similar plans are being adopted in Akron, Fort Wayne, San Antonio, Tampa and Kalamazoo.

Shop Equipment Business Sets Record at New York

NEW YORK, Jan. 28—Reports received by the Motor & Accessory Manufacturers Association from exhibitors and metropolitan distributors who worked together in the shop equipment section at the New York show indicate that the feature was a thorough success, said Neal G. Adair, manager of the Sales Development Bureau. Practically all of these exhibitors will show in Chicago. More sales of shop equipment were made at the New York show than at any previous national show or at the service equipment expositions staged independently at Detroit.

LOCAL SHOWS DRAW HIGH ATTENDANCES

PHILADELPHIA, Jan. 29—Record show attendances are being reported from all cities in which exhibits have been staged in the year to date. These include many cities whose shows rank close to the New York and Chicago events in retail significance and importance.

Good weather has been one of the most important attendees at a majority of the shows and an important volume of retail buying is reported. Dealers report sales comparing favorably with any previous events and on the whole are enthusiastic as to the outlook for large early year buying.

Factory conventions held in conjunction with many of the shows have resulted in placing of large orders by dealers.

Buses Replace Trains on Eleven B & M Lines

BOSTON, Jan. 27—"The motor coach has established a permanent place in the scheme of organized transportation, coordinated with rail service," H. B. Fritch, passenger traffic manager of the Boston & Maine Transportation Co., said in address before the New England Railroad Club at its January meeting. His company, he said, is now operating 61 motor coaches on 24 routes covering 678 route miles.

Coaches are used on 11 of these lines in substitution for rail service to provide more frequent trips or to reduce operating losses; five lines are used as feeders, and six to supplement rail service, relieving through trains of local stops. Two lines are operated seasonally to provide alternate service for those who want to ride by highway.

Problems attending railroad pioneering have their counterpart today in the problems presented by development of the automobile. It is indeed a time for railroad men to be on the alert, Mr. Fritch said.

Foreign Makers Stronger

NEW YORK, Jan. 26—European automobile manufacturers are in a strong competitive position to establish themselves in foreign and domestic markets, says George E. Eddins of the National Bank of Commerce in the February issue of Commerce Monthly. This situation is due to improved manufacturing methods, development of models suitable for foreign markets, protective tariffs and buy-at-home propaganda.

Tax Repeal Motion Now in Congress

Petition to Compel Action Lacks Needed Signatures; Proposes 1928 Action

WASHINGTON, Jan. 26—Elimination of the remaining 3 per cent excise tax on automobiles was taken up by Congress this week, under a parliamentary skirmish by the Democrats, attempting to lay the failure for tax reduction "at the door of the Republicans." The Republicans, on the other hand, characterize the Democrats' efforts as "nothing more than a feeble gesture."

On Jan. 24, in accordance with notice served last week, Minority Floor Leader Garrett offered a motion asking that the Committee on Ways and Means be required to report out within 15 days the tax reduction bill introduced by Representative Garner which carries a total of \$335,000,000 tax relief—eliminating the 3 per cent passenger car tax and reducing corporation taxes from 13½ to 11 per cent.

To take a bill from any committee, requires a majority vote, or 218. Immediately on presentation of the Garrett motion, 176 Democrats flocked to the speaker's table and signed the petition. Three Republicans signed also—making total signers of 179. The Democratic members total 182. Thus, to adopt the motion 36 Republicans must join, which is not considered likely.

Following the presentation of the Garrett motion the political lines were tightly drawn and two days were consumed in its debate, strictly from a partisan viewpoint.

Senate to Get Bill

On the Senate side, Senator Reed announced his intention of offering the Garner \$335,000,000 tax reduction as an amendment to the Urgent Deficiency bill which comes up in the Senate later in the week. Under the Senate rules, however, one member may have it stricken out, on motion.

After three days' debate, Representative Madden, chairman of the House Appropriations Committee, following a conference with President Coolidge on tax reduction, announced that the Republicans would "stand firm at the present time but press for a big tax reduction in the next Congress, convening a year hence."

Cobleigh Visits Shows

NEW YORK, Jan. 28—H. R. Cobleigh, secretary of service of the National Automobile Chamber of Commerce, has started on a two weeks' trip visiting a number of more prominent city shows in which shop equipment exhibits are being staged and attending the annual meeting of the Society of

Automotive Engineers in Detroit. He will also attend the service meeting of the National Automobile Dealers Association, the Automotive Electric Association meeting and the shop equipment group meeting of the Motor & Accessory Manufacturers Association all of which will be held in Chicago during show week.

S.A.E. Sessions Hear Cobham and Clark

DETROIT, Jan. 26—With an early registration of about 600 members and guests which bids fair to mount to record breaking figure, the annual mid-winter meeting of the Society of Automotive Engineers opened Jan. 25. In addition to a number of committee meetings and sessions covering bodies and training, the first day was featured by an evening airplane travel session at which the principal speakers were Sir Alan Cobham, the famous British pilot who made the England-to-Australia flight; Major Raycroft Welsh and Major Lester D. Gardner.

Fuel and research sessions of Wednesday proved drawing cards judging by attendance. A paper on the application of X-rays to the automotive industry, by George L. Clark, of the Massachusetts Institute of Technology, was the outstanding feature of the production session. Almost equal interest was aroused by the criticism of cast iron practice by E. J. Lowry.

R. H. Dietrich predicted that shortly a trend away from bead and double belt effects might be expected, although new methods of design will preserve pleasing low appearance. At the same session, H. Steinbrugge discussed the Weymann type body as used now by Stutz with a saving of 600 lb. in total weight. Chromium plating, the topic of W. N. Phillips induced widespread discussion.

9 Overland Conventions Yield \$16,642,000 Orders

TOLEDO, Jan. 28—Willys-Overland Co. reports orders placed by dealers at sales convention in nine cities totaling \$16,642,000. This is declared to be in excess of estimates prepared by officials. By cities the orders were placed as follows:

New York, \$3,000,000; Toledo, \$2,300,000; Pittsburgh, \$2,084,000; Philadelphia, \$2,005,000; Milwaukee, \$1,967,000; Detroit, \$1,900,000; Atlanta, \$1,200,000; Buffalo, \$1,000,000, and Indianapolis, \$1,187,000.

Root Again Heads N.A.P.A.

DETROIT, Jan. 28—Officers of the National Automotive Parts Association were reelected at the annual meeting this week. They are H. G. Root, president; W. W. Martin, vice-president; C. H. Davis, secretary-treasurer, and Henry Eagle, C. C. Colyer, R. W. Boozer, Estel Scott, A. F. Baxter and A. C. Darling, directors.

Business in Brief

Written exclusively for AUTOMOTIVE INDUSTRIES by the Guaranty Trust Co., second largest bank in America.

NEW YORK, Jan. 29—Trade continued in fair volume last week, although bad weather retarded activity in a number of lines. Steel buying was in rather small volume, while some improvement was noted in the demand for lumber. The level of commodity prices recovered slightly after several weeks of continuous decline. Stock prices moved irregularly, with the greatest strength and activity in the railway shares. Money rates remained low.

COTTON GOODS STOCKS

Sales of standard cotton textiles in 1926 exceeded production by 2.9 per cent, according to the Association of Cotton Textile Merchants of New York. Stocks on hand at the mills at the beginning of January were 9.06 per cent smaller than stocks a year earlier.

FREIGHT CAR LOADINGS

Car loadings during the week ended Jan. 8 numbered 940,800, as against 740,348 in the preceding week and 907,622 in the corresponding period last year.

BANK DEBITS

Bank debits to individual accounts reported to the Federal Reserve Board for the week ended Jan. 19 were 3.2 per cent above the total of a week earlier but 0.6 per cent below that of a year ago.

PETROLEUM OUTPUT

Crude petroleum production continued at a high level during the week ended Jan. 15, averaging 2,391,000 bbl. daily, as against 2,389,850 bbl. in the preceding week and 1,947,600 bbl. in the corresponding period last year. Numerous reductions in gasoline and kerosene prices occurred last week, while crude oil prices were virtually unchanged.

FISHER'S INDEX

Fisher's index of wholesale commodity prices stood at 146.0 last week, as against 145.1 a week earlier and 146.5 four weeks earlier. The industrial stock price index declined from 171.3 to 169.8.

FEDERAL RESERVE STATEMENT

Bills and securities held by the Federal Reserve banks declined \$74,500,000 during the week ended Jan. 19, with a decrease of \$74,400,000 in discounts and only minor changes in other bill and security holdings. Note circulation declined \$40,500,000 and deposits \$6,000,000, while reserves increased \$24,400,000. The reserve ratio rose from 75.4 to 76.9 per cent.

During the same period, loans of reporting member banks declined \$135,000,000, with decreases of \$67,000,000 in loans secured by stocks and bonds, \$17,000,000 in loans secured by Government obligations and \$51,000,000 in "all other" loans.

Mexican Dispute Not Bar to Trade

Good South American Sales Assured Says Nash—Not in on Mergers

BUFFALO, Jan. 26—American export business to South America will not be hampered or curtailed by the present strained relations between the United States and Nicaragua and Mexico, according to C. W. Nash, president of the Nash Motors Co., in Buffalo to attend the automobile show.

"The men who do things in South American countries cannot be bothered by petty political stress. I am convinced that American exports to that continent, already gaining year by year, will continue to show a substantial increase. Our South American representatives tell me that American products and American politics are two separate and distinct questions down there.

"The continued increase in automobile sales is up to the engineers and salesmen of the various companies," Mr. Nash said. "Two years ago the American automobile factories were equipped to turn out more cars than could be consumed. Now some factories will increase their products while others will fall."

Commenting upon the rumors that the Nash concern was about to merge with another automobile company, or planned to absorb several smaller companies, he said, "I have never been consulted as to the mergers. Possibly some plants would like to absorb Nash sales, but I cannot see where the strong companies would benefit by the wholesale mergers which are constantly being rumored in the automobile field."

Questioned as to the five-day week plan recently adopted by another concern, he remarked: "I have never been able to find enough working hours in a six-day week, let alone cutting off a whole day."

Federal Trains Salesmen for Retail Establishments

DETROIT, Jan. 24—The Federal Motor Truck Co. will open a new Federal sales school at the factory, offering 10-day intensified courses to Federal truck salesmen. The first class begins Feb. 7 and each group will be limited to 50 students. Factory executives will give instruction.

The course is being thrown open to all members of the Federal sales organization, who may become students by filling in the application blanks which are distributed by the factory. The blanks must be endorsed by the local Federal management and approved by the factory management.

Four qualifications are laid down. The student must have had at least three months' experience, must have

sold at least three trucks, must display some evidence that he has sales capacity and that he will prove faithful to Federal.

Students' expenses, comprising railroad fare and living costs in Detroit, will be absorbed three ways, one-third by the Federal company, one-third by the branch, distributor or dealer and one-third by the student. During their stay in Detroit students will be housed in Webster Hall, where a special section has been reserved.

Change Hertz Plan

Securing of Right to Drive Cars Made Simpler

CHICAGO, Jan. 26—Declaring it has been found after three years of experience that cars can be rented "100 per cent on an honor basis," the Hertz Driv-ur-Self Station, controlled by the Yellow Truck & Coach Mfg. Co., announces a new plan for identifying those eligible to use the Driv-ur-Self cars.

Under the new policy a registered key will be furnished any applicant whose name appears in the telephone book or who can furnish one reference in case the telephone book does not contain his name. To take out a car it is only necessary to show this key at the service station. This key bears the name of the person to whom it is issued, it is registered by the company and the company will offer a reward for its return if it is lost. No charge is made for the key. The new plan makes it unnecessary to fill out a blank form or go through other formalities in order to use a Driv-ur-Self car.

Opens Two Sales Offices

CLEVELAND, Jan. 24—Sales offices have been opened in Detroit and Chicago by the Lamson & Sessions Co., which recently took over the Kirk-Latty Mfg. Co. in a merger of the interests of the two companies. The Detroit office is at 4-228 General Motors Building with W. M. Olsen as manager, and the Chicago office is at 1016 Straus Building, where H. W. Moulder is associated with L. C. Cowell in the management. Present sales offices in other cities will be continued with the personnel of both organizations.

Acklin Drops Negotiations

TOLEDO, Jan. 20—Questioned regarding rumors of a projected consolidation with another company, officials of the Acklin Stamping Co. stated that negotiations to this end have been definitely terminated.

Establish Detroit Office

CLEVELAND, Jan. 24—The Cleveland Worm & Gear Co. has established a district sales office in Detroit, at 2600 Buhl Building, with H. A. Sparrow in charge as district manager.

Air Spring Concerns Merge in Cleveland

Westinghouse Combines With Pneumatic Tool; Products Are Unchanged

CLEVELAND, Jan. 25—The merger of the Westinghouse Air Spring Co., of New Haven, Conn., with the Cleveland Pneumatic Tool Co., of Cleveland, was made public here this week by L. W. Grave, treasurer and general manager of the local concern.

The New Haven plant of Westinghouse will be moved to Cleveland where the facilities and resources of these two air spring pioneers will be combined. It is to be expected that with the Cleveland Pneumatic Tool's large organization of sales and service stations this merger will make possible more complete service facilities for users of both Westinghouse and Gruss air spring equipment. The field service department of the Cleveland Pneumatic Tool Co. operating directly from the factory will be increased.

Entered Market at Same Time

Westinghouse and Gruss air springs entered the market about the same time in 1912, the former prominent in the East and the latter on the Pacific Coast. The Cleveland Pneumatic Tool Co. was awarded the license to manufacture and merchandise the Gruss air spring in 1921. This concern also produces air-controlled riveting hammers, drills, sand rammers, mining tools and the "Cleco" air line fittings.

It is announced that no change will be made in the design of either Gruss or Westinghouse air springs. Both types will be built and marketed by the Cleveland Pneumatic Tool Co. under the new arrangement.

1926 Federal Automotive Taxes Totalled \$88,920,180

WASHINGTON, Jan. 25—Excise taxes collected from the automobile industry during 1926 totaled \$88,920,180.48 and represented a decrease of \$23,064,647.32 in the amount so collected by the Federal Government comparing with 1925, the Internal Revenue Bureau has just announced here. The 1925 collection was \$111,984,828.80. The decrease, of course, is due to the elimination of the accessories and truck excise taxes, and decrease from 5 to 3 per cent on passenger cars.

The December (1926) collection of automotive excise taxes aggregated \$5,117,021.98, representing the 3 per cent collected on passenger cars. The December, 1925, collection totaled \$12,490,663.56. Of this sum \$9,384,606.01 represented the 5 per cent collected on passenger cars; \$1,919,769.21 represented the excise taxes on tires, parts and accessories and \$1,186,288.34 represented the truck tax.

Steel Prices Easy; Demand Broadens

Still Buyer's Market for Auto- motive Stock—Alloy Steels Cut

NEW YORK, Jan. 27—Impending broadening of automotive consumption of steel is reflected to a moderate extent by the growth in the number of orders and specifications coming to mills. Tonnages involved in individual commitments indicate that automotive purchasing agents at this time are concerned solely with covering February requirements, and that they will let the rate at which the demand for automotive products develops set the pace for their commitments in the steel market.

Competition among steel producers for all desirable automotive business continues so keen that buyers need exert little pressure on prices. The recent bid of 1.90 cents, Pittsburgh, on a round tonnage of steel bars by the leading interest has virtually eliminated the 2-cent price, except on very small tonnages. While the market for cold-finished steel bars continues to be nominally quoted at 2.40 cents, Pittsburgh, it is certainly easy at that price level. The sheet market has probably left the worst behind, but quite a few parts manufacturers appear to have covered their requirements several months ahead at concessions of \$2 @ \$3 a ton from the relatively low prices generally quoted.

Full Finished Sheets Easy

Full-finished automobile body sheets are easy at 4.15 cents, Pittsburgh and Youngstown, and in fender stock competition between sheet and strip mill interests is so acute that all uniformity of prices seems to have gone by the board. A cut of \$2 per ton is noted on Series 3100 automotive alloy steels. Demand for alloy steels is slowly recovering.

The positions of other metals follow:

Pig Iron—Automotive foundries are taking on more pig iron. Michigan shipments carry a \$19.50, furnace price, the Valley market holding at \$18.50. Downward revision of wage scales, which appears to have been begun by some of the non-union coal and coke interests, injects a note of uncertainty into the outlook, and, as April 1 draws nearer, talk about a coal strike on that date is likely to become more and more chronic in the pig iron market.

Aluminum—Reduction by the sole domestic producer of all grades of ingots to the extent of 1c per lb. has put the market for 98 to 99 per cent pure virgin metal on a 26c per lb. basis. Importers and second hands had previously cut 1/2c under the domestic producer's price, so that the "outside" market had to give way only to the extent of 1/2c to meet the leading interest's reduction. World aluminum output will be considerably greater this year than it ever has been. New plants in Canada and on the European Continent are expected to come into full production.

Copper—While the copper market is still

far from animated, brass and copper products manufacturers report an increase in automotive business.

Tin—Buyers indifferent. Market irregular.

Lead—Slightly better demand at recently marked down price levels.

Zinc—Somewhat more steady, with producers less eager to unload.

Hardwood Buying Shows Sharp Rise

ATLANTA, Jan. 26—Lumber manufacturers and wholesalers in the Atlanta market state that there has been a marked impetus in the volume of orders from the automobile and body manufacturing industries in the northern territory in the past 10 days, and that the present volume of advance orders being placed by the industry has reached the largest point noted at any time since the early part of last summer. The inquiry also is very active and indicates that the industry plans to buy this year on at least a normal basis.

Business is particularly heavy with truck body makers, who are not only placing advance requirements of a sizeable nature, but also doing considerable buying for their immediate needs and asking quick shipment. This business is the best it has been in about a year and a better than normal season seems in prospect, judging from the present tone of the inquiries.

The price situation is unchanged, no appreciable changes having been noted in the hardwood list used by automotive makers, in fact, in about four months. The primary call is for thicker dimensions of the best grades of white ash, with a fair call for No. 1 and select ash and the best grade of maple.

Midland Frame Shipments Total 1,200,000 in 1926

CLEVELAND, Jan. 25—The Midland Steel Products Co. built 1,200,000 automobile frames during 1926, according to H. F. Kulas, manager of the Cleveland plant. He states that this is one-third of the output of the country and that with the product of the Detroit plant, the Midland company produced 60 per cent of all frames used. The Cleveland plant consumed 85,000 tons of steel in 1926 and in addition to frames, produced 300,000 axle housings.

Mr. Kulas says that the labor cost per frame during last year was \$1 and freight averaged 15 cents per frame.

A.E.A. to Move Offices

CHICAGO, Jan. 22—The Automotive Equipment Association will move its executive offices about February 15 from the City Hall Square Building to the new Pure Oil Building at 35 E. Wacker Drive. In the new quarters the association will occupy the entire thirty-first floor and will have sufficient room to house the new market development department that is being inaugurated.

Gains Made in Parts Sales of M.&A.M.A.

December Shipments Better Than November, But Are Below December, 1925

NEW YORK, Jan. 25—Although gains were made in December by manufacturers of parts and accessories for original equipment of passenger cars and trucks, business was lower than a year ago, according to reports to the Motor & Accessory Manufacturers' Association. A much better gain is expected for January.

Original equipment shipments in December, based on figures supplied by a large group of M. & A. M. A. members, was equal to 95 per cent of January, 1925, compared with 79 per cent in November, and 141 in December, 1925.

Similarly replacement parts shipments to wholesalers yield an index figure of 109 in December as compared with 94 in November and 145 in December, 1925. There was a decline in accessory shipments to the trade with the index at 64 as compared with 83 for November, and 146 a year ago.

Garage machinery and tools also show a slight falling off, dropping from an index of 119 in November to 112 in December, against 110 a year ago.

The grand index for December shipments by members in all four groups was 94 as against 81 in November.

Continued and more decisive gains in February and March are indicated by informal reports by members to the M. & A. M. A. headquarters.

Campbell Opposes Factory Selling of Accessories

NEW YORK, Jan. 24—In a letter to E. V. Hennecke, president of the Automotive Equipment Association, Colin Campbell, vice-president of Durant Motors, Inc., states that it is not the intention of Durant Motors to handle automotive accessories through its parts department. Mr. Campbell wrote:

"We feel that the automotive jobber is best qualified to handle such standard accessories as may be required; furthermore, that the dealer is entitled to any profit which he may make in the sale of such accessories as a customer may desire placed on his car, and that this profit can best be secured by dealing with and purchasing through his regular automotive jobber."

Logangear Moves Plant

TOLEDO, Jan. 25—Logangear Products Co. is moving its equipment from the Bellefontaine plant to the main factory here. The Bellefontaine plant will be abandoned as the production capacity at Toledo is ample and shipping facilities are better. By reason of its highly specialized operation at Toledo the concentration of manufacturing will be especially beneficial.

Seiler is Appointed President of Yellow

Move Seen Signaling Closer
Relations Between G.M.C.
and Truck Company

CHICAGO, Jan. 26—The appointment of Paul W. Seiler as president and general manager of the Yellow Truck & Coach Mfg. Co. is seen by executives in the motor truck and coach field as signaling even closer relations between General Motors Corp. and the truck company. With the association of Mr. Seiler it is expected that Yellow will intensify its effort to gain the standing in the commercial field that General Motors passenger car divisions have gained in the passenger field.

Mr. Seiler as president of Ternstedt Mfg. Co., the body hardware and stampings division of Fisher Body Corp. has become known in the industry as one of its most aggressive executives. Though building up an outstanding organization at Ternstedt, Mr. Seiler, by his personal contact with his officers and the organization generally, has maintained a spirit of accomplishment which has carried the company to new records in each year of his administration.

Taking over the Ternstedt company when its organization numbered less than 100, he has built it to one of the largest of the Detroit units. Successively he has had placed under his direction, in addition to his Ternstedt duties, the Sheppard Art Metals Co. and more recently, the bus body manufacturing plant operated by Fisher Body Corp. in the former Scripps-Booth plant in Detroit.

As president of Yellow Truck & Coach, Mr. Seiler succeeds John A. Ritchie, who has been appointed vice-chairman of the board. Announcement of the changes was made by John Hertz, chairman of the board. In his new position, Mr. Ritchie will have increased opportunity for the development of coach business, Mr. Hertz said. He will continue as president of the Chicago Motor Coach Co. and chairman of the board of the Fifth Avenue Coach Company.

Mr. Ritchie further will take over some of the work which Mr. Hertz has been giving personal attention.

Goodrich Net \$5,000,000

AKRON, Jan. 28—Net sales of the B. F. Goodrich Co. in 1926 were shown as \$148,000,000 in the company's preliminary statement issued this week. Profits from operations approximated \$10,500,000 and after depreciation, interest and Federal taxes there remained a balance of about \$5,000,000. Current assets as of Dec. 31, 1926, were \$62,900,000 and current liabilities \$6,600,000. The maturity of \$5,000,000 of the \$15,000,000 of 5 per cent notes was met from current assets.



Paul W. Seiler

Who leaves presidency of Ternstedt Mfg. Co. to become president of Yellow Truck & Coach Mfg. Co.

Archer is Promoted to Ternstedt Helm

DETROIT, Jan. 25—Thomas P. Archer has been elected president and general manager of the Ternstedt Mfg. Co., subsidiary of the Fisher Body Corp. He succeeds Paul W. Seiler, who has been elected president of the Yellow Truck & Coach Mfg. Co.

Mr. Archer has been affiliated with the Ternstedt organization from its early days and previous to his election to the presidency served as vice-president and production manager. He has had an important part under Mr. Seiler in bringing Ternstedt to its position as leading manufacturer of body hardware in the industry. By reason of his abilities and experience he is looked for to continue Ternstedt in its successful career.

Hayes Defers Dividend Pending Trade Increase

JACKSON, Jan. 27—Hayes Wheel Co. declared regular quarterly dividend of \$1.87½ on the preferred, payable March 15 to stock of record Feb. 25. No action was taken with respect to the quarterly dividend of 75 cents on the common.

In connection with the passing of the common dividend, C. B. Hayes, president, stated that while the company is in splendid financial condition, with large surplus, ample cash resources and no debts, the directors felt it was the part of conservation to take no action on the common dividend until the trend of business is more clearly defined. On Dec. 31, company had current assets of more than \$3,700,000, of which \$1,800,000 was in cash items against current liabilities of only \$300,000.

Canadian Factories Set High of 205,116

Output in 1926 Gains 26%
Over 1925; Imports From
United States Double

OTTAWA, Jan. 27—Marked progress was registered in the automobile industry of Canada during the calendar year of 1926, according to statistics issued this week. The government figures showed that the production in Canadian factories during the year reached the new high record of 205,116 motor vehicles, an increase of 26 per cent over the total for 1925 and 55 per cent in advance of the total for 1925.

The output for 1926 was made up as follows: 68,059 sedans and coaches; 14,282 coupes; 61,472 touring cars; 8555 roadsters; 23,230 chassis; 29,365 trucks and 153 buses. The sales value of these cars, f. o. b. factory, for 1926 amounted to \$124,000,000 as compared with \$103,000,000 in 1925 and \$79,000,000 in 1924. During 1926 there were 11 factories in Canada engaged in the manufacture of automobiles and all of these were located in the Province of Ontario.

The output of 205,116 automobiles in Canada during 1926 compared with a production of 162,221 in 1925. The output of closed models was 82,341, or 66 per cent higher than in 1925. Trucks made in Canada during the past calendar year totaled 29,365 as against 21,646, while chassis produced numbered 23,230, an increase of 46 per cent over the 15,872 of 1925. A decline was registered in the output of open passenger models as the number of this type made in 1926 was 70,027, a drop of 6 per cent from 1925.

Imports Total 28,535

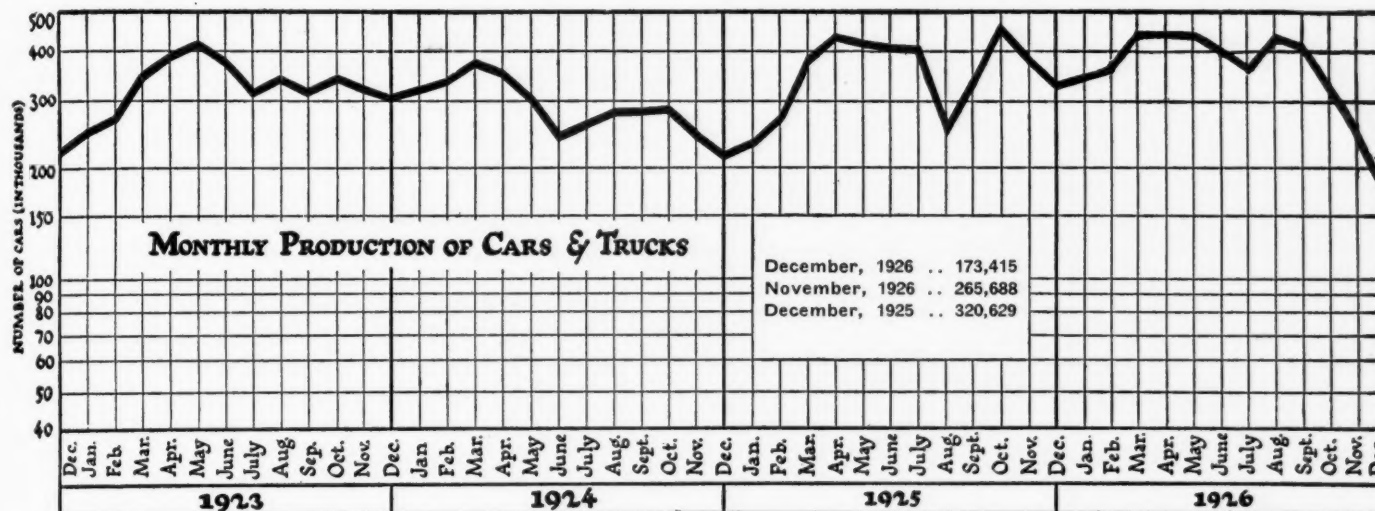
Imports of automobiles into Canada during 1926 totalled 28,535 cars, or almost double the number imported during 1925 when 14,638 cars were bought from other countries.

Exports of motor cars from Canada during 1926 numbered 74,553 and exceeded the imports by 161 per cent. In the previous year, the exports were greater by 408 per cent.

Automobile manufacturers in Canada produced one new car in 1926 for every 46 persons in the Dominion; in 1925, the production was one new automobile for every 57 persons.

Statistics were also given for the month of December alone, when the Canadian factories produced 7752 motor vehicles as compared with 9828 in November. The output for December included 2306 open passenger models; 1698 closed models; 1323 trucks; 2423 chassis and two buses. In December, 1925, the output was 8904 cars, of \$15,000,000 of 5 per cent notes was met from current assets.

December Production Reaches Low for 1926



N.A.C.C. Proposes Congresses Abroad

NEW YORK, Jan. 26—In accordance with the proposal to organize the next World Transport Congress abroad, the National Automobile Chamber of Commerce has suggested that this event be staged each year in a country designated by the Bureau Permanent International des Constructeurs d'Automobiles, which is composed of the automobile manufacturing associations of the world. This proposal will be placed before the bureau meeting in Stockholm in June.

The interest of the British manufacturers and of the German automotive industry in staging the congress in their countries was voiced at the congress just held here. Col. J. Sealy Clarke, former president of the Society of Motor Manufacturers and Traders of Great Britain, said that Great Britain would ask to be awarded the event for October, 1927.

Suggestion was also made by the N. A. C. C. that international days be set aside at each of the congresses to permit welcoming of visitors.

Budd Wheel Distributors Hear Merchandising Talks

DETROIT, Jan. 26—More than 60 Budd Wheel Co. distributors from various points in the United States closed their second annual convention at Hotel Statler last night.

Merchandising methods, particularly as applied to the Budd Wheel products, were stressed at the business session by E. S. Ingham, service sales manager, who presided at the sessions. He pointed to the obligation of distributors to render service in keeping with Budd standards of practice and also cited that in so doing they were opening opportunities to establish reputations as experts in the wheel industry.

At the banquet Monday night, Sidney Stern of Automotive Merchandising,

and P. W. Sloan of Timken-Detroit Axle Co., were the principal speakers. J. H. Barnes, of the truck department, and Elmer Clark, head of the truck wheel sales division of Budd, were speakers at Tuesday's business sessions.

Airplane Trip Shows Cost Lower Than Rail

WASHINGTON, Jan. 26—If you would travel cheaper, travel by air.

It can actually be done, according to local representatives of the Wright Aviation Co. of Hasbrouck Heights, N. J. Flying at an average speed of 111 miles an hour, a Wright-Bellanca cabin monoplane, carrying six passengers, and pilot, completed a round trip from Hasbrouck Heights to Washington in four hours and a half, the cost per passenger being \$13.88 against a minimum railroad fare of \$16.28.

The plane was inspected by post office officials in connection with the company's bid to carry the Chicago-San Francisco mail. The average fuel consumption was 11 miles to the gallon and compared favorably, the officials were told, with that of an automobile.

White Builds in 13 Cities

CLEVELAND, Jan. 27—While details will not be completed for 30 days, it is announced that the White Co. is planning a service and sales building program that will cost \$1,225,000. Buildings will be erected in 13 cities. Milwaukee will have a structure with 30,000 sq. ft. of floor space. Last September the company completed buildings at its Cleveland plant which cost \$1,000,000.

Jordan Describes New Car

CLEVELAND, Jan. 27—Two hundred Jordan dealers and officials were addressed at a dinner at the Hollenden Hotel at which Edward S. Jordan, president of the company described the new small car.

Cleveland Plants Add to Schedules

CLEVELAND, Jan. 26—Generally speaking the automobile industry here is slowly recovering from the recession which characterized the closing of 1926 and plants are adding workmen although taking back their old employees only.

Jordan directors have laid out a production campaign for 1926 which will be the largest on record. Sales of \$2,336,000 were reported at the New York show. Charles L. Bradley, vice-president of the company, says that it will be 60 days before the new six can be delivered to the public. He says that dealers and distributors will be supplied first with demonstrators.

New model offerings also have brought in much new business to Chandler and Peerless.

Fisher Body Ohio Co., while it has a large force numerically, has far fewer employees than one year ago; National Acme and Willard Storage Battery are below normal; Midland Steel Products, largest frame maker in the country, is running about 50 per cent. However, orders coming in indicate a speedy improvement. The Allyn-Ryan Foundry, parts maker, recently increased its working schedule from three and four days a week to six. Thompson Products is at 80 per cent.

Ford By-Products Sales Gain \$2,250,000 in 1926

DETROIT, Jan. 26—The by-products business of Ford Motor Co. totaled \$13,000,000 in 1926, which exceeded the previous year by \$2,250,000. Machine shop turnings, sheet scrap and other waste netted \$3,000,000 and sale of coal about \$4,000,000. Chemicals made from wood scrap at Iron Mountain, and coke at the Fordson plant, brought \$2,500,000. During the year the company installed machinery to manufacture 600,000 bbl. of cement annually from furnace slag.

Schmidt Finds Good Outlook for Trade

N.A.C.C. Representative Reports Increasing Interest in Motor Facilities Overseas

NEW YORK, Jan. 24—Fuller appreciation of the advantages of motor transportation was encountered by Walton Schmidt, field representative of the National Automobile Chamber of Commerce, in virtually every country that he visited in his eleven months' globe-encircling trip, which he ended with his arrival here Friday on the Homeric. Mr. Schmidt met and conferred with officials and members of the trade in various countries, but he made a particularly thorough survey of motor transportation conditions in Australia, Asia and Africa.

"It seems clear that the world is at the start of a very large increase in its transportation facilities," said Mr. Schmidt. "In each country I visited the government officials, the trade and the general public were alive to the possibilities of the present day. At Melbourne, for instance, attendance at the automobile show was 102,122, an amazing total considering the limited population."

Mr. Schmidt said that he found a general recognition of the necessity for good roads. He cited the fact that in India a large fund has been raised, known as the India Industries and Road Development Fund.

There is a need for more service and gasoline stations, he said, which probably will be met with increased motor registration. In Nairobi, he said, a 20-gallon gasoline tank is desirable. Cars which have rear trunk and top trunk racks meet a real need, he said, because the car is used by the whole family on long trips, and much baggage must be carried.

Similarly a complete tool kit is necessary because the owner must do his own repairing. The distance between service stations also means a demand for extra tires and a tire carrier with two rims is a helpful accessory.

New Bills Introduced in State Legislatures

Ohio—To compel personal liability insurance of \$10,000 for all car owners, or the posting of other indemnity of like amount before licenses or number plates are issued.

To include benzol and other fuels in a 2-cent gasoline tax.

Illinois—To change collection of gasoline tax to time of importation rather than at retail sale; to license gasoline dealers and to establish tax guarantee by priority tax liens.

California—To increase gasoline tax from two cents to three cents a gallon, additional income to be devoted exclusively to new highway construction.

Maryland—To increase gasoline tax from two cents to 4½ cents a gallon, additional income to be devoted to building lateral roads and to meet state's share of grade crossing elimination cost.

To obtain loan of \$3,250,000 for road building and completion of Crain Highway.

To spend \$1,000,000 for building and reconstructing bridges.

Iowa—To provide graduated reduction of automobile license fees over five-year period, first registration to be 1 per cent of list price plus 40 cents per 100 lb. of weight and decreasing ¼ per cent until in fifth and subsequent years registration is on basis of weight alone. No vehicle, regardless of age, shall be licensed for a full year for less than \$10.

Texas—To place regulation of motor transport for hire, both freight and passenger, under direct supervision of railroad commission.

Seaman and Nash Plants Show Increases in 1926

MILWAUKEE, Jan. 24—Forty-two million board feet of lumber, largely hardwoods, were used during the year 1926 by the Seaman Body Corp. in the manufacture of closed bodies, all of its production being absorbed by the Nash Motors Co. These figures reveal one of the principal reasons why the Nash-Seaman industry recently has built its own sawmills adjacent to large tracts of virgin timber in the southern hardwood belt.

The Milwaukee Nash plant, in which the special six line is built, produced 46,536 in the last fiscal year, a gain of more than 12,000 cars over the previous year, when 35,204 cars were manufactured. The high record of 1926 was accomplished in face of the fact that the motor department had to be completely rebuilt to bring out the new 7-bearing crankshaft model. The changes consumed much time and cost approximately \$600,000, it is stated.

To Sell Wrench Company

BARABOO, WIS., Jan. 25—The property of the Allan-Diffenbaugh Wrench & Tool Co., Baraboo, Wis., which has been in the hands of a receiver since May 4, 1923, has been ordered sold by the Circuit Court to satisfy creditors. The receivership did not cause a suspension of operations, however. Stockholders and creditors have been called to attend a meeting to be held Feb. 14, at the plant, to appoint a protective committee.

Tractor Plants at Peak

MILWAUKEE, Jan. 24—Despite much talk of a more or less unfavorable agricultural situation generally, Milwaukee manufacturers of power farm equipment are at peak production on tractors. Both the Allis-Chalmers Mfg. Co. and the Milwaukee division of the International Harvester Co. report the call for tractors as good. During the third week in January, 30 carloads of tractors were shipped.

Austin Net Profit Declines £117,344

Orders of £1,000,000 Unfilled Owing to Labor Troubles, Directors Say

LONDON, Jan. 15 (by mail)—According to the report of the Austin Motor Co., the gross trading profit for the year ended Sept. 30 last was £648,415 and the net profit £330,508. For the preceding year the gross profit was £748,890 and the net profit £447,852. The directors explain that the general strike and the coal dispute seriously affected the year's turnover and profits and that orders for over £1,000,000 were left unexecuted. After deducting the year's net profit, the balance on the debit side of the profit and loss account stood at £1,386,938.

In a circular accompanying the report the directors state that the capital reorganization proposals cannot be discussed further at the moment as a writ has been served on the company by a shareholder who seeks to set aside the resolutions carried at the last general meeting. Meanwhile other shareholders have issued circulars advocating different schemes of reconstruction and making reference to the remuneration of the executive, which the board consider is a matter for them alone to deal with.

With regard to the net profit for the last complete year, this is considered satisfactory under the circumstances, while prospects for better results during the current year are bright.

Oshkosh Truck Interests Plan Protective Action

OSHKOSH, WIS., Jan. 25—Stockholders and creditors of the Oshkosh Motor Truck Mfg. Co. will meet Feb. 17 to choose a protective committee. A short time ago friendly receivership proceedings were instituted to facilitate a financial reorganization handicapped by inability to bring an unusually large stock distribution into common agreement. W. G. Maxcy of Oshkosh, was appointed receiver with authority to continue operations and issue receiver's certificates. Now, however, action has been taken to foreclose a trust deed to secure payment of certain bonds because the interest due July 1, 1926, has not been paid, nor have taxes assessed for 1925 been paid.

Buys 53% of Plate Glass

WASHINGTON, Jan. 24—American glass manufacturers in 1925, produced glass products valued at \$295,959,424, or a decrease of 4.3 per cent below the total for 1923, according to the report of the biennial census of manufactures by the U. S. Department of Commerce.

The automobile industry consumed approximately 53 per cent of the 117,369,400 sq. ft. of plate glass, polished, valued at \$57,207,447.

Meetings and Events Scheduled for Week of Chicago National Show

**NATIONAL SHOW AT CHICAGO
JAN. 29-FEB. 5, COLISEUM**
Opens Saturday, Jan. 29... 2.00 P. M.
Show closed Sunday, Jan. 30.
Shop Equipment Section open daily to trade exclusively from 10.00 A. M. to 3.00 P. M.
Trade Days—Monday, Jan. 31 and Tuesday, Feb. 1.
Show open to trade exclusively between 10 A. M. and 1.00 P. M.
THURSDAY, JAN. 27
Chicago Automobile Trade Association, Pre-Show Meeting and Banquet, Congress 6.30 P. M.
SATURDAY, JAN. 29
Annual Chicago Salon, continuing through Feb. 5, Drake.
Elcar Motor Company, first of series of daily Sales Meetings, Palmer House...Morning
Hupp Motor Car Corp., first of Daily Luncheons, Blackstone 1.00 P. M.
Rickenbacker Motor Co., first of daily Dealer Meetings, BlackstoneMorning
MONDAY, JAN. 31
National Automobile Dealers Association, Annual Meeting Board of Directors, La Salle 10.00 A. M.
TUESDAY, FEB. 1
Moon Motor Car Company, Banquet, Congress 1.00 P. M.
National Automobile Chamber of Commerce, Service Meeting.
National Automobile Dealers Association, Annual Convention, La Salle 1.30 P. M.
Oakland Motor Car Company, Luncheon, Palmer House Noon
Packard Motor Car Company, All-Day Zone Meeting for Dealers and Distributors, Blackstone.
The F. B. Stearns Company, Dealers' Luncheon, Drake 1.00 P. M.
WEDNESDAY, FEB. 2
Auburn Automobile Com-

pany, Luncheon and Meeting, Blackstone Noon
Franklin Automobile Co., Dealer Luncheon, Drake... 1.00 P. M.
Motor and Accessory Manufacturers Association, Service Parts Group Meeting, Palmer House... 10.00 A. M.
Shop Equipment Group Meeting, Palmer House... 2.00 P. M.
National Automobile Dealers Association, Convention, La Salle 10.00 A. M.
Banquet and Trade Frolic, La Salle 6.30 P. M.
Olds Motor Works, Dealers' Business Meeting, at Chicago Branch 2.00 P. M.
Western Dealers' Dinner, Congress Evening
Packard Motor Car Company, All-Day Zone Meeting for Dealers and Distributors, Blackstone.
Velle Motors Corp., Luncheon, Congress 1.00 P. M.
THURSDAY, FEB. 3
Motor and Accessory Manufacturers Association, Accessory Group Meeting, Palmer House 10.00 A. M.
Nash Sales Co., Luncheon for Dealers of Indiana, Iowa and Illinois, Congress Noon
National Automobile Chamber of Commerce, National Automobile Dealers Association and Motor and Accessory Manufacturers Association—Joint Service and Shop Equipment Program, La Salle 10.00 A. M.
National Association of Automobile Show and Association Managers, Meeting, Drake 1.00 P. M.
Paige-Eetroit Motor Car Co., Luncheon, Blackstone Noon
Studebaker Corp., Dealers' Banquet, Congress 6.30 P. M.
FRIDAY, FEB. 4
Chevrolet Motor Co., Dealers' Meeting, Erlanger Theater 2.00 P. M.
Banquet, Palmer House ... 7.00 P. M.

Little Marmon Has 4 Custom Bodies

Three Models Priced \$2595
With Cabriolet at \$3125—
Deliveries Started

INDIANAPOLIS, Jan. 26—Prices on the Little Marmon line with custom-built bodies have been announced by H. H. Brooks, general sales director, as follows:

Two-window sedan \$2595
Three-window sedan ... 2595
Victoria 2595
Town cabriolet 3125

The prices are set to bring the line midway between the prices of the standard Little Marmon and the standard Series 75 large Marmon types. Deliveries are now being made to dealers.

The complete Marmon line is now divided into five units, No. 1 composed of the Series 75 custom-built closed bodies by Holbrook, Locke and others; No. 2 open and closed custom-built models of the 75 Series; No. 3 the standard large Marmon models; No. 4 the custom-built Little Marmon line, and No. 5 the standard little models.

Would Curb Parking by Creating New Tax

HARTFORD, CONN., Jan. 25—Suggestion is made to Connecticut municipal authorities by R. B. Stoeckel, commissioner of the state department of motor vehicles, that all-day parking in busy streets be curbed by imposition of a parking tax. The tax, he declares, can be sustained on the ground that a parked car occupies road space.

The plan without detail, says Mr. Stoeckel would be to obtain a general enabling act under which cities and towns can determine: (a) limit for parking time, (b) the various streets and highways upon which such a tax shall apply, and (c) in general, a working plan for collection.

December Tire Exports Off

WASHINGTON, Jan. 24—Automobile tire and tube exports in December showed an increase of 6.4 per cent in similar exports for December, 1925, figures announced by the Department of Commerce show. A total of 152,709 casings, valued at \$2,045,727; 90,715 inner tubes, valued at \$206,042, and tire accessories valued at \$117,648, were exported in December.

Increases Onyx Output

DYERSVILLE, IOWA, Jan. 24—Yavapai Onyx Mining Corp., manufacturers of Onyx gear shift balls, radiator ornaments, etc., has removed from Dubuque to a larger factory here, where production will be largely increased. J. A. Kelly is president, and F. J. Lawlor, director of sales.

American Plane Makers Seek European Markets

WASHINGTON, Jan. 25—American airplane manufacturers are preparing to invade the European markets with their products, W. B. McCracken, assistant secretary of commerce in charge of aviation, this week told members of the American Society for Steel Treating at their annual convention here. "Engine manufacturers of the United States," Mr. McCracken said, "have made greater progress in the acquisition of foreign trade than the airplane manufacturer." He outlined the department's participation in attempting to further U. S. manufacturers' foreign sales.

Brazil to Increase Tariff

WASHINGTON, Jan. 26—Three changes of some import to the automobile exporters of the U. S. were announced this week by the U. S. Department of Commerce, in tariff import duties into foreign countries. They are: Brazil announced an increase of 20 per cent in import duties, effective April 8, on automobiles, buses, trucks, chassis, tires, tubes, motorcycles and accessories; Mexico prohibits, for one year, importation "of all kinds of war stores, including airplanes, balloons, armored

automobiles, tanks, and other vehicles for military use"; and the Canary Islands has revoked the circulation tax on automobiles, imposing instead a gasoline tax.

Parker Increases Line With New 3½-ton Model

MILWAUKEE, Jan. 25—Parker Truck Co., Inc., announces a new model, the Parker road builder, a 3½-ton job equipped with a two-patch dump body and designed for loaded speeds up to 35 and 40 m.p.h. A Wisconsin overhead valve engine is used, pneumatic tires—dual rear—are standard and a completely inclosed cab is furnished.

The wheelbase is 140 in., and the weight of the job complete with body, Heil hoist and cab is 7100 lb.

Churchville Elects Officers

PHILADELPHIA, Jan. 24—Officers of the Churchville Mfg. & Laboratories Co. were elected at the annual stockholders meeting held here today. V. S. Fry is president; C. H. Davis, vice-president, and C. J. Stover, secretary and treasurer. Additional directors are Joseph Pfister and J. B. Gillies. The company reported satisfactory business in 1926 with outlook for increased sales in 1927 encouraging.

Men of the Industry and What They Are Doing

Continental Officials Reelected by Directors

Continental Motors Corp. directors met here Tuesday and reelected the following officers for the coming year: R. W. Judson, president; W. R. Angell, executive vice-president; W. A. Frederick, vice-president in charge of engineering; R. M. Sloane, treasurer, and T. M. Simpson, secretary.

Stockholders of Continental Motors Corp. have reelected all directors at the annual meeting. The directors are R. W. Judson, W. R. Angell, W. A. Frederick, Roger Sherman, A. E. Green, James H. Ferry, E. W. Niver, R. M. Sloane and B. F. Tobin, Jr.

Thomas M. Simpson, secretary, has been transferred to the company's offices in Muskegon. Mr. Simpson joined Continental as assistant credit manager in September, 1916. In January, 1922, he was made credit manager and assistant secretary, and a year later was named secretary of the company. All credit matters for the company are under his immediate supervision.

Olds Promotes E. H. Smith

Earl H. Smith has been appointed experimental engineer of Olds Motor Works. He joined Oldsmobile as assistant chief inspector in 1925 and later became chief inspector. He will work with H. C. M. Stevens, chief engineer, and J. G. Wood, recently named executive engineer. His first position was with the Mitchell Automobile Co. in special service work and after the war was with Marmon as shop representative of the engineering department and later as assistant chief engineer. He joined Rayfield Carburetor Co. in 1923, serving as assistant consulting engineer, then chief engineer and later in the sales division. George Christopher, former factory manager of the Dayton Electric Co., succeeds Mr. Smith as chief inspector at Oldsmobile.

Gordon Lee Forms Company

Gordon Lee, former chief of the automotive division of the U. S. Department of Commerce and latterly general sales manager of the American Car & Foundry Motors Co., has organized the Moto-Service Elevator Co., Chattanooga, Tenn., which will handle sales of an electric automobile elevator built by the American Hoist Corp.

Walton Joins E. P. Hurd

Thomas R. Walton, who resigned recently as secretary and treasurer of the James Motor Valve Co., has been named sales manager of the E. P. Hurd Co. of Detroit, which is about to start an intensive campaign on tire locks and chains. Mr. Walton assumes his new position Feb. 1.

DUESENBERG GETS TABLET FROM A.A.A.

Fred S. Duesenberg has received a bronze tablet, the gift of the contest board of the American Automobile Association, in official recognition of the part he has played for years in inventing and perfecting automotive improvements. The tablet reads:

In Appreciation of
FRED S. DUESENBERG

Racing is the crucible in which have been thoroughly tested many of the fundamentals of automotive engineering found in present-day automobiles.

The race track has been the stock room of ideas for engineers of passenger cars to which you have so graciously surrendered the key.

Thomas P. Henry,
President A. A. A.

Hambly to Show Marmon

Frank L. Hambly, export manager of the Marmon Motor Car Co., will sail from New York Feb. 5 for a visit to the international motor exposition in Cairo, Egypt, and a tour of European countries. Mr. Hambly will supervise the display of the new Little Marmon at the Cairo show which begins Feb. 16. His tour will include visits to England, France, Holland, Switzerland, Germany and possibly Spain. During his stay in Switzerland, he will complete arrangements for an exhibit of Marmon automobiles at the Swiss national automobile show which begins March 16 in Geneva.

H. E. Dodge Visits Europe

Horace E. Dodge, president of the Horace E. Dodge Boat Works and son of one of the founders of Dodge Brothers, Inc., is now in Europe where he will make a first-hand study of every important boat building plant in England and the continent. He will be gone three to six months and will travel from city to city in his own Stinson airplane, piloted by Marion Sterling, his personal aviator.

Hubbs Joins Durant

George C. Hubbs, formerly sales manager of the Ajax division of Nash Motors Co., now the Nash light six, has joined the staff of Durant Motors, Inc. His offices will be in New York, where he will assist W. C. Durant in Star, Flint and Locomobile divisions.

Goldie Leaves Ruggles

R. J. Goldie has resigned as general manager of the Ruggles Motor Truck Co. and is now vacationing. He will make an announcement of future plans about Feb. 15.

Duggan Heads Service of National Standard Parts

Tom O. Duggan, of Los Angeles, has been named merchandising service director of the National Standard Parts Association. Mr. Duggan was sales manager of the Chanslor & Lyon Co., Los Angeles branch. He was associated with that automotive jobbing house for the last 13 years. Mr. Duggan has spent 18 years in the automobile business and is a veteran in the replacement parts field. He is a member of the Society of Automotive Engineers, his mechanical interest being in aircraft work and, of course, in the automobile field.

He will assist the N. S. P. A. jobber members in trade education and market development and aid in the formation of local N. S. P. A. groups.

Munro Joins Sweeney-James

Walter J. Munro, well known in automotive advertising and merchandising circles, has resigned as vice-president and general sales manager of the Osborne Co., manufacturer of brushes, to become vice-president of Sweeney & James, an advertising agency of Cleveland. He was formerly associated with the Detroit and Cleveland offices of T. F. MacManus, Inc. Sweeney & James acts as advertising counsel for Jordan, Peerless and other automotive accounts.

Caldwell Succeeds Wright

Albert E. Caldwell has been appointed manager of the Detroit branch of the John Warren Watson Co., succeeding Harold Wright who will take up work for the company in the factory installations division. Mr. Caldwell was formerly secretary of the Continental Rubber Works, Erie, Pa.

Brousseau Sees Road Costs Cut

A. J. Brousseau, president of Mack Trucks, Inc., predicted reduced expenditures in the construction of roads in a paper before the National Crushed Stone Association at its convention in Detroit. Much can still be done in the mass production of roads, he said.

Strohm, Detroit Manager

Grover E. Strohm, formerly with the Prest-O-Lite Co., Inc., has assumed the management of the Detroit office of the National Spring & Wire Co., of Grand Rapids, which maintains quarters in the General Motors Building. Mr. Strohm will have charge of the Detroit and Cleveland territories.

Take Factory Positions

W. B. Sawyer and E. M. Lubeck, who have been appointed to head the two sales groups created by Oakland Motor Car Co., will have headquarters at the factory in Pontiac.

Hudson 1926 Net Totals \$5,372,874

Decrease From 1925 Earning
Reflects Cost of New Plants,
Says President

DETROIT, Jan. 25—Net income for the 13 months ending Dec. 31, 1926 of \$5,372,874, after deductions for expenses, depreciation and allowance for Federal taxes, is reported by the Hudson Motor Car Co. This is equal to \$3.36 a share on the outstanding capital stock. During its previous fiscal year ending Nov. 30, 1925, the company reported net income of \$21,378,504, equal to \$16.07 a share on the capital stock then outstanding.

In the last 13 months the company's gross profits on the sale of motor cars and parts totaled \$16,302,581 and income from other sources increased the total income to \$17,005,566. Deductions totaled \$11,632,691, comprising \$7,615,575 for sales, advertising, shipping, service, administration and general expenses and \$3,252,016 for depreciation and allowance and \$761,100 as provision for Federal income taxes payable in 1927.

Surplus Totals \$31,748,234

By adding the year's net income, the surplus of \$26,375,360 as of Dec. 1, 1925, was increased to \$31,748,234. From this balance was appropriated \$5,188,772 in cash dividends, \$3,331,625 in a stock dividend, and \$108,070.67 for additional 1925 income taxes due to retroactive increase in rates, leaving surplus as of Dec. 31, 1926, \$23,119,766. It is pointed out that the net earnings for the year exceed by \$200,000 the cash dividend.

Current assets which total \$21,561,395, include \$4,463,384 in cash and \$6,000,000 in Liberty Loan bonds. Inventories, listed at cost or market, whichever was lowest, aggregate \$9,185,933. Current liabilities total \$6,575,643, of which current accounts payable made up \$4,322,661; taxes, payrolls and items accrued and not due, \$855,937, and dividend payable Jan. 1, 1927, \$1,397,044. The ratio of current assets to current liabilities is nearly $3\frac{1}{2}$ to 1.

Writes Off \$10,471,298

After writing off \$10,471,298 in reserves for depreciation, plant assets showed a valuation of \$28,324,028. Investments were \$39,110 and deferred expenses \$787,137. Reserves totaled \$1,058,011, of which \$765,100 was for Federal income taxes payable this year and \$292,911 for contingencies.

There were 1,596,660 shares of no par common stock outstanding valued at \$19,958,250, while at the end of the preceding year there were outstanding 1,330,050 shares and 100 shares of \$10 par value stock, valued at \$16,626,625.

R. B. Jackson, president, in issuing the statement, declared that during the

past year the cost of making plant additions to provide for increased capacity, reduced net. "The business for the first quarter of 1927 started with the strongest demand we have had for years—already we have increased our February and March production schedules to meet the retail sales requirements."

Moto Meter Adds New Tire Tester

NEW YORK, Jan. 26—Moto Meter Co., Inc., will begin deliveries of a new tire tester Feb. 20, announcement of which recently has developed thousands of orders, the company says. This with a new self-adjusting spark plug which is soon to be announced is expected to develop largely increased business in 1927 without important increase in sales cost or general overhead.

Business in 1926 was large, the company says, net earnings totaling more than twice the amount necessary for dividends on Class A stock. Purchase of the National Gauge & Equipment Co. during the year is pointed to as a fortifying move to insure large future business. Contracts for equipment from many leading car producers in 1927 make business prospects generally better than in several years.

Oil Conservation Board to Visit Detroit Plants

WASHINGTON, Jan. 25—First hand information, as to ways and means in which the automobile manufacturer might cooperate with the government in reducing gasoline consumption, will be studied this and next week by the Federal Oil Conservation Board, which has announced its acceptance of an invitation of General Motors Corp. to come to Detroit and make a personal survey.

The board for the past two years has been studying the question of oil conservation in the nation and will make its recommendations to the President shortly after the study of the automobile industry's phase of the work.

Form New Gear Company

MILWAUKEE, Jan. 22—Articles of incorporation have been filed by the Generating Gear Co., Milwaukee, authorized capital \$25,000. The new corporation is a development of a partnership business operating for several years. The principals are Robert C. Fink and Fred E. Holtz.

Store Parks Buyers' Cars

PHILADELPHIA, Jan. 26—With more drastic parking rules now effective in Philadelphia down-town streets, one of the large department stores has arranged for the accommodation of patrons' cars at a rate of 25 cents for four hours. The shopper leaves the car at the garage and is carried from there to the store in a bus.

Financial Notes

Mack Trucks, Inc., earned \$8,084,733 net in 11 months to November 30, 1926. These are the profits of the parent company and are after depreciation, taxes, etc. After allowance for the period's proportion of dividends on the first and second preferred stock issues, there was a balance for the 11 months of \$7,041,794 available for the 713,434 shares of common stock or \$9.87 a share. In the 1925 calendar year, Mack Trucks earned \$9,468,269, equal after preferred dividends to \$13.62 a share on 611,515 shares of common.

Waukesha Motor Co. for year ended July 31, 1926, reports net sales \$4,103,168, against \$3,106,669 for the previous fiscal year, and net income of \$596,993 and \$385,329 respectively. Balance sheet for July 31, 1926, showed current assets, including cash \$111,956, of \$1,833,376 against total current liabilities of \$319,330, leaving net working capital of \$1,514,046, against \$1,272,406 as of July 31, 1925.

Bearings Co. of America reports net income of \$312,595 for the period from Feb. 23, 1926, to Sept. 30, 1926, equal, after dividends on the 1st and 2nd preferred stock to \$2.12 a share on the 100,000 shares of common outstanding. Current assets at the latter date were \$968,448, against current liabilities of \$69,719, leaving net working capital \$898,729. Current assets included \$497,620 cash.

Greenfield Tap & Die Corp. will show net profits, before depreciation, of over \$700,000 as against \$550,244 for 1925, and \$317,940 for 1924, according to estimates. After depreciation and dividends on preferred stock, the balance for the common stock is over \$2.30 a share on 129,953 shares, against \$1.54 a share (after 8 per cent preferred sinking fund) in 1925, and a deficit in 1924.

Brockway Motor Truck Corp. has declared an extra cash dividend of 25 cents a share, a stock dividend of 2 per cent and the regular quarterly cash dividend of 50 cents a share on the common stock, payable Feb. 1 to holders of record Jan. 21, 1927. On Nov. 1, 1926, a similar stock dividend was paid on the common.

Gabriel Snubber Mfg. Co. reports a net income of \$1,033,630 after all charges for 1926, equal to \$5.16 a share on the 200,000 shares of no par combined Classes A and B common stock. This compares with \$1,314,081 or \$6.57 a share in 1925.

Hudson Motor Car Co. directors have declared the regular dividend of $87\frac{1}{2}$ cents per share on the outstanding capital stock. Dividend is payable April 1 to stockholders of record March 15.

Motor Wheel Corp. declared regular quarterly dividend of 2 per cent on preferred, payable Feb. 15 to stock of record Jan. 31.

Belgian Companies Merge

BRUSSELS, Jan. 18 (by mail)—The Auto-Traction Co., truck maker, has been absorbed by Minerva. The development of road transportation in Belgium is being retarded by high taxation.

Largest Motor Boat Show Draws Crowds

NEW YORK, Jan. 25—The twenty-second annual motor boat show, which opened at Grand Central Palace last week, under the auspices of the National Association of Engine and Boat Manufacturers, drew a record crowd. It will continue until Jan. 29.

For the first time in the history of the show the exhibits require three floors of the palace.

One of the centers of interest on the first floor, which is devoted to cruisers and speed boats, is the Luerssen-Maybach cabin cruiser from Germany, the first large foreign craft displayed in a boat show here.

Another attraction is the Whistler, a "free bottom" boat driven by an airplane motor and propeller and steered by a combination air and water rudder. The craft draws only nine inches of water at rest and five when it is under way. It can skim over sandbars in three inches of water and over mud with only one inch.

Austria Considers Bill to Encourage Aviation

WASHINGTON, Jan. 26—Legislation to encourage aviation in Austria is being actively supported in the Austrian Parliament, the Department of Commerce is advised by Commercial Attache H. L. Groves at Vienna. Under a measure, now pending, the Government will rebate companies importing airplanes, fuel, accessories, etc., used in aviation—permitting such imports tax free. All aviation companies are also to be exempted from payment of any taxes whatever, either as to property, earnings, Government or local taxes. All tax privileges, etc., will remain in force until 1950, the measure provides.

Seek Rigid Airship Bids

WASHINGTON, Jan. 24—Design data and bids for the construction of one or two rigid airships of 6,000,000 cu. ft. volume have been requested by the U. S. Navy Department in a competition to close at midnight May 16. The ships were authorized by Congress in the five-year building program.

Coming Feature Issue of Chilton Class Journal Publication

Feb. 19—Automotive Industries
—9th Annual Statistical Issue.

South Spends Millions on Sales-Service Units

ATLANTA, Jan. 25—The year 1926 established a new record in the South in the number of buildings constructed by the different branches of the automotive industry, and close to a record in the amount of money invested in such construction, according to figures recently compiled by a building financing concern in Atlanta, concerning the industrial and building growth of the sixteen Southern States in 1926.

In the automotive industry alone, including filling stations, there were approximately 2100 projects carried out, this total including new companies and new construction of an important nature by existing companies. The investment in new buildings ran to several millions.

In the motor bus field, including terminal construction, new lines, new bus companies formed, etc., there was a total of about 350 projects and an increase of over 25 per cent in the bus mileage in the South.

Prevents Tractor Tipping

WASHINGTON, Jan. 24—The U. S. Patent Office, reversing a former decision, has issued a patent, numbered 1613112, to R. E. Lauck for an automatic device to prevent the overturning of tractors on dangerous grades by stopping the motor before the critical angle is reached, it was announced this week. The device includes a pendulum moved by gravity which short circuits the ignition system.

G.M. Truck Places Branch

SPOKANE, Jan. 24—General Motors Truck Co. branch here, for the past three years operated under the Seattle branch, has been made a major factory branch and is now being operated as a direct factory branch.

Interstate Buses Subject to States

WASHINGTON, Jan. 24—A decision of major importance to the motor transport industry, doing intra and interstate business, has been rendered by the U. S. Supreme Court holding the Massachusetts State laws, regulating the use of streets by motor buses, valid and not in conflict with the commerce clause of the constitution of the United States and with the due process clause of the Fourteenth Amendment.

The defendant was the Interstate Busses Corp. The bus company did both an intrastate and an interstate business. Because of its interstate aspect, the corporation refused to abide by certain Massachusetts laws regulating buses, as to stops, operating parallel to street railroads, and refused to secure a permit from the State Department of Public Utilities—the bus corporation holding that all of these regulations applied only to intrastate movement.

The statutory provisions were sustained by the trial court and by the highest court of Massachusetts. The U. S. Supreme Court, in sustaining the Massachusetts court, ruled in substance:

"That a motor bus company, operating an interstate line of motor vehicles, also carrying intrastate passengers, may not evade a state law, enacted in the exercise of the state's power to control and regulate local traffic, by linking intrastate and interstate carriage of passengers."

A.A.A. to Supervise Test of British "Mystery" Car

WASHINGTON, Jan. 25—The contest board of the American Automobile Association has accepted requests that it supervise tests in this country of the powerful British "mystery" automobile, which will attempt to establish a new world speed record this spring in Florida.

The big 6200 lb. car with engines exceeding 1000 hp., the board announces, will be shipped from England next month by the Sunbeam Motor Car Co., Ltd. The car will be driven by Major H. O. D. Segrave, internationally known speed driver and engineer.

Calendar of Coming Events

SHOWS

CairoFeb. 15-March 15
First International Motor Show.
ChicagoJan. 29-Feb. 5
National Coliseum, National Automobile Chamber of Commerce, including special Shop Equipment Exhibit.
ChicagoJan. 29-Feb. 5
Annual Salon, Hotel Drake.
CopenhagenFeb. 18-27
Danish Automobile Exposition.
GenevaMarch 4-13
Palais des Expositions.
Los AngelesFeb. 12-19
Annual Salon, Hotel Biltmore.

CONVENTIONS

Automotive Electric Association, Electric Service Meeting, Congress Hotel, ChicagoFeb. 1-2
National Foreign Trade Council, DetroitMay 25-27
National Safety Council, Mid-West Safety Congress, Hotel La Salle, ChicagoFeb. 21

S. A. E.

French Lick Springs, Ind., May 25-28—Summer Meeting.

New England, Feb. 10—Electric Drive as Motor Bus Transmission—C. Froesch.

RACES

Abilene, TexasJuly 4
Altoona, Pa.June 11
Atlantic CityApril 30
Charlotte, N. C.May 9
Fresno, Cal.April 21
IndianapolisMay 30
Los AngelesFeb. 22
Los AngelesApril 10
Salem, N. H.June 25